



3 1761 11649360 2

CA1 Z1
-44021

Page

Canada. Royal commission on coal.

Minutes. V. 61-65, 1946

1946

A. R.
C. xvii

A

CANADA

176

ROYAL COMM. ON COAL

MINUTES

61 - 65

510498
21. 8. 50



Digitized by the Internet Archive
in 2023 with funding from
University of Toronto

5655

UNIVERSITY OF TORONTO
LIBRARY

ROYAL COMMISSION ON COAL

Ottawa, Ont.

VOLUME LXI

Witness

Pages

Dr. L. E. Young 5656 - 5728

Exhibit

No. 282 - Western Canada Mines -
Report by L. E. Young,
March 15, 1946 5657

510498
21. 8. 50



ROYAL COMMISSION ON COAL

Ottawa, Ont.,
April 1, 1946.

The Royal Commission on Coal convened at No. 3
Temporary Building, Ottawa, Ont., on Monday, April 1st,
1946, at 10.00 A.M.

PRESENT:

Hon. Mr. Justice W. F. Carroll, Chairman
Hon. Mr. Justice C. C. McLaurin, Commissioner
Angus J. Morrison, Esq., Commissioner
J. J. Frawley, K.C., Commission Counsel
Dr. R. D. Howland, Secretary
Dr. L. E. Young, Commission Engineer
K. J. Morrison, Commission Accountant

BY MR. FRAWLEY: Dr. Young, you have already given
evidence before the Commission and you are still under oath.
Now you have done some work on the Western Canada mines, have
you?

DR. L. E. YOUNG: I have visited the principal produc-
ing mines in all of the essential mining districts of Western
Canada.

BY MR. FRAWLEY: And you have prepared a report as a
result of that investigation?

DR. YOUNG: I have, and am prepared to submit it.

BY MR. FRAWLEY: Will you proceed to put your report
on the record, Dr. Young?

DR. YOUNG: I will. This report as submitted relates
to Saskatchewan, Alberta and British Columbia.

Exhibit 282 - Western Canada Mines -
Report by L. E. Young,
March 15, 1946.

The Royal Commission on Coal,
Ottawa, Canada.

The major coal mining districts of Saskatchewan, Alberta and British Columbia have been inspected and a review has been made of the various official reports on the geology of the coal fields, the published descriptions of the operating mines, the annual reports of the Mines Departments of the Provinces, the reports by earlier Commissions, and the submissions to the Royal Commission made in 1945 and 1946.

As in the inspection of coal mines in other parts of the Dominion, the objective has been to secure relevant data on, -

1. The physical conditions in the various coal seams, such as
 - (a) thickness, general character, and pitch of the seams now being worked,
 - (b) the character and uniformity of the roof and the floor,
 - (c) the uniformity of the coal seams over large areas, including the occurrence of undulations or rolls in the floor, the frequency of "gashes" or clay veins that may make mining conditions difficult, the splitting of the coal seam by partings, or bands of inferior coal, shale, or stone.
2. The general methods of mining and the suitability of the present methods for the physical conditions in the areas visited.
3. The type of the underground equipment installed, the suitability and the adequacy of the underground equipment for the work to be done, and the operating condition and state of repair of the equipment.

4. The adequacy and maintenance of the power distribution systems and the reliability of the power supply.
5. The general condition of the mine openings, slopes, entries, tunnels, airways, headways, etc.
6. The general condition of the working-sections, such as typical longwalls, rooms, and pillar lines.
7. The distribution and use of mine supplies and recovery of material that should be salvaged.
8. The adequacy of mine ventilation, and pumping and drainage facilities; the handling and use of explosives, the adequacy of rock dusting; the facilities provided for hauling men underground, and the safe maintenance of such facilities.

In any survey of a group of coal mines, the general character of the coal seams, the physical qualities of the roof and floor of the seams, the presence of gas and water, and many other physical factors are obvious. The character of the surface plant and underground equipment, the suitability of the equipment for the job to be done, the extent to which effort-saving devices are employed, and the application of mechanical and electrical power can be observed. It is more difficult, however, to appraise management and the overall efficiency of the labor employed without intimate acquaintance with the operating properties, and the only method that can be followed is to judge by the results secured, such as the earnings and the productivity of the employees, the operating costs, the financial position of the company, the physical condition of the mines and plants, and the demand for and the marketability of the product.

As many as possible of the larger operations were visited, including the following:

SaskatchewanSouris Area, Bienfait Division

Manitoba and Saskatchewan Coal Company, Limited,
Bienfait

Shaft mine and stripping pit
Western Dominion Coal Mines, Limited, Taylorton
Stripping pit

AlbertaCascade Division

Canmore Mines, Limited, Canmore
Underground Mines

Coalspur Division

Coal Valley Mining Company, Limited, Coal Valley
Stripping pit
Foothills Collieries, Limited, Foothills
Slope mine
McLeod River Hard Coal Company, Limited, Mercoal
Slope mine
Sterling Collieries Company, Limited, Sterco
Stripping pit

Crowsnest Division

Hillcrest Mohawk Collieries, Limited, Bellevue
Underground mine (Did not go underground)
International Coal and Coke Co., Ltd., Coleman
Underground mine
McGillivray Creek Coal and Coke Co., Ltd., Coleman
Underground mine (Did not go underground)
West Canadian Collieries Limited, Blairmore
Bellevue (Underground mine)
Greenhill (Underground mine)

Drumheller Division

All of the following are underground mines:

Atlas Coal Company, Limited, Drumheller
Commander Mine, Drumheller
Regal Mine, East Coulee
Hy-Grade Coal Mining Company, Limited, Drumheller
Midland Coal Mining Company, Limited, Drumheller
Monarch Coal Mining Company, Limited, Drumheller
Red Deer Valley Coal Company, Limited, Drumheller
Rosedale Collieries, Limited, Rosedale Station

Data on several other mines were secured in conferences.

Edmonton Division

Banner Coals, Limited, Carbondale
Underground mine
Great West Coal Company, Limited, Clover Bar
Underground mine
Kent Coal Company, Limited, South Edmonton
Underground mine

Alberta (Continued)Lethbridge Division

Lethbridge Collieries, Limited, Lethbridge
Galt (No. 8), Shaft (Did not go underground)
Shaughnessy Mine, Shaft

Mountain Park Division

Cadomin Coal Company, Limited, Cadomin
Underground mines and stripping pit
Luscar Coals, Limited, Luscar
Underground mines and stripping pits
Mountain Park Coals, Limited, Mountain Park
Underground mine

Taber Division

Western Ventures, Limited, Taber
Emergency strip operation (Did not inspect)

British ColumbiaVancouver Island Division

Canadian Collieries (Dunsmuir) Limited, Nanaimo
No. 10 (South Wellington) Mine
Underground mine
White Rapids Mine
Underground mine
No. 5 (Cumberland) Mine
Underground mine
No. 8 (Cumberland) Mine
Underground mine
Tsable River Mine
Underground mine

Crowsnest Division

Crow's Nest Pass Coal Company, Limited, Fernie
Michel Colliery, Michel
Underground mine
Elk River Colliery, Coal Creek
Underground mine

SUMMARY OF FINDINGS

1. The coal fields of Western Canada, including Saskatchewan, Alberta, and British Columbia, are extensive and cover a large area in the plains, the foothills, and the mountains. The known reserves are large, except on Vancouver Island where exploration now in progress may develop additional commercial areas.

2. Much of the coal occurs on Provincial lands and many of the coal developments are on Provincial leases and some on grants from the Government.

3. The coal formations of Western Canada have been mapped in general but additional geological information is necessary in certain areas in order to appraise fully the extent and the mineability of the various seams.

4. The coals of Western Canada have been classified by the Dominion Mines Branch, the Provincial Geological Surveys, and the Provincial Research Councils. There is a great variety of coal available ranging from Low Volatile Bituminous in the mountain areas to Sub-bituminous and Lignite in the prairie areas.

5. Mine-plant capacity has been adequate in normal times to meet the market requirements. While a number of the plants are modern, some of them are old; modernization of these has been retarded on account of irregular working time and lack of assured markets.

6. A general statement in regard to mine development cannot be made due to the diversity of mining conditions. In some areas, advance entry development must be held at a minimum in order to keep entry-maintenance as low as possible; in other areas, it is wise to mine the panels retreating and, therefore, panel entries must be driven on schedule. Local conditions must govern.

7. Labor supply in the pre-war period has been adequate in most fields. At some mines however, shortages of men occur due to seasonal operation, while at others there may be some difficulty in securing a full quota of men on account of the high altitude at which some of the mining villages are located.

8. The marketing of the several types and sizes of coal has been a controlling factor in limited the development, the capacity, and the annual production of Western Canada coal mines. It appears that competitive fuels are making serious inroads in a number of the markets previously supplied with Canadian coals.

9. The supplying of coal to seasonal markets may require special storage facilities at times or the seasonal operation

of mines. If appropriate storage facilities are not provided, the meeting of fluctuating demands requires surplus labor supply, excess plant-capacity, and reserve mine development, all of which have the effect of increasing necessary operating costs.

10. Underground mining practice in Western Canada has been developed to meet local conditions. A great diversity exists in mining conditions and no general system or standard can be established for extended areas.

11. Comparisons based on production per man day are not significant unless all of the facts are known and considered. Generally such figures may be used in comparing neighboring mines on the same coal seam, but in some of the mines the cost of supplies, power, etc., are very important factors and these also must be considered. In the thick, pitching seams where the coal is friable and requires very little shooting, it is to be expected that the labor cost of placing coal on the mine car will be relatively low in comparison with the labor cost in a flat seam where the coal must be undercut and loaded manually into small-capacity mine cars.

12. The efforts to use mechanical-loading devices in underground mines in Western Canada have been intelligent and progressive. The physical conditions of the seams, the existence of hazards from gas and dust, and the intermittent mine operation have hindered the extensive use of mechanical-loading devices. Renewed efforts are being made in the post-war period to apply available equipment and to develop new machinery and new methods better suited to local mining conditions.

13. Due to the occurrence of gas, at times in dangerous quantities, the use of electrical machinery has been restricted.

14. During the war, in the effort to meet the urgent demands for coal, a number of stripping operations were started.

An energetic search for suitable sites for stripping resulted in the opening of several pits which may be continued as profitable operations.

15. The cleaning of coal in modern preparation plants in Western Canada deserves commendation. Due to impurities in the seams and the mining practice necessary to produce coal under varying seam conditions, considerable of the coal would not be marketable unless cleaned mechanically. To warrant additional investment in cleaning plants, assured markets permitting regular operation are essential.

16. Briquetting of fine sizes has received most careful consideration and is being done extensively at some of the mines where the coal is friable.

17. Coking of fine sizes to produce metallurgical coke has been practised at several mines where the coal has suitable coking properties. By-products are recovered at one plant.

18. Safety of mine workers is being given most careful attention by the operating officials of the various mines. The standards established by the regulations of the Mining Departments of the several Provinces are high and the periodical inspections by the Official Provincial Inspectors are reported to be thorough. Interviews with a number of the inspectors indicated that most capable, efficient, and conscientious men comprise the inspection staffs of the several Provinces.

19. Rescue stations, first-aid stations, and necessary field equipment were found to be maintained in good condition.

20. Research has been conducted for a number of years, particularly with regard to the character of the various coals and the effective utilization of each. There is increasing interest in the development of new uses for coals of the various types in order to expand the markets. Request has been

made for additional research facilities for both Dominion and Provincial agencies. Attention is being directed to the need for additional research for underground operations relating to increased safety, efficiency, and production.

21. The work that is being done in mining education and the training of men for supervisory positions has been commendable. There is a serious effort to retain in the coal mining industry the young men who have resided in the coal mining villages.

22. In general, labor and management appear to be cooperative and fully appreciative of the necessity for working in harmony in order to secure improved safety and efficiency of operations, an adequate coal supply, a profitable industry, and prosperous mining communities.

23. Long-range planning for

(1) mining at greater depths in the districts where the seams are pitching steeply,

(2) mining at greater distances from existing mine plants involving improvements in haulage and ventilation facilities, and including

(3) the building of cleaning, briquetting, coking, and processing plants, and

(4) the construction of improved housing facilities,

can be considered only in relation to future markets and continuing regular operation of the mines.

G E N E R A L

The coal fields of Saskatchewan, Alberta, and British Columbia have been mapped by the Provincial and Dominion Geological Departments; numerous reports and papers have been prepared describing the coal measures and the seams; and the coals produced from these seams have been studied by research chemists and combustion engineers. The suitability of the coal

from the several seams for various purposes has been studied in the Government research laboratories, as well as in the laboratories of the producers and users of coal.

Detailed descriptions of the plants of some of the mines have been published from time to time and reviews of the mining practices are available in the proceedings of Canadian technical societies, and in the engineering journals. The production records are available, having been published in the official reports of the Provinces and of the Dominion.

The problems of the bituminous coal mining industry have been presented to this Commission and to Commissions appointed at earlier dates. These problems were accentuated at times by war conditions, labor disturbances, and critical competitive situations, resulting at times from surplus coal production in the United States, competition from petroleum, natural gas, and general industrial depressions.

PROBLEMS OF WESTERN CANADA

While the Western Canada coal mining industry has a number of vital problems requiring most serious consideration, it may be said that a large majority of these problems spring from the lack of markets. In the submission of the Minister of Lands and Mines of Alberta, he states that the disturbing factors in the industry are,

- (1) intermittent employment,
- (2) efficiency of operation,
- (3) underground maintenance as affecting the general condition of the mines and labor relationship, and
- (4) wages and other related matters.

While much progress has been made in the introduction of new machinery and improved plants and practice, it is the lack of assured markets for a reasonable length of time that has been responsible for a number of the companies not making substantial expenditures for general improvements in plant and facilities and installing more underground machinery.

It has been pointed out that, excepting for one field, there is no question about coal reserves being adequate for many years to come. There is no question about mine plant capacity in general as full plant capacity has never been utilized in normal times. In the post-war period there should be no question about the supply of labor if reasonable working time throughout the year may be assured.

In the following review of existing conditions and suggested remedies, there will be no discussion of marketing problems and matters of policy relating to the Industry as a whole.

The great diversity in seam conditions and in the physical character, as well as the chemical quality, of the various coals, makes impossible many general statements, general conclusions, and general recommendations.

It should be noted, as will be discussed in considerable detail later, that many of the mining methods employed generally in flat coal seams and much of the mining machinery which is used extensively and efficiently in flat beds cannot be employed generally in the coal mines of the mountain areas. The pitch of the seams, the folding and faulting of the beds, the friable nature of the coal, the presence of gas and water in the coal seams, and the common occurrence of massive strata of sandstone overlying the thick beds, - all contribute toward making the extensive mining of these seams at increasing depth most difficult and at times hazardous.

In following the practices which have been found most suitable and least hazardous for such conditions, it has been necessary to make expenditures for plant and equipment that are not required in mining a flat seam and to carry on mining operations in a manner that is much more expensive in some respects than in the flat seams. The occurrence of gas in quantity and the outbursts of gas have resulted in the general use of compressed-air for power underground, instead of the

more efficient and less expensive electricity.

These thick, pitching seams occur in areas where the winters are most severe and these conditions also add to the problems and increase the cost of operation.

As much of the standard mining machinery in use, together with the necessary repair parts, are not manufactured in Canada, these items are much more expensive than at the competitive coal mines in the United States.

In some instances, the mines are remote from the larger towns and the remoteness has made it difficult to secure and retain an adequate and stable labor force.

The mines in some of the fields have been in operation many years and the problems noted above are not new, but in any careful and fair appraisal of the present situation and a consideration of the outlook for the future, these prevailing conditions and facts must be restated.

MAINE DEVELOPMENT PROGRAMS

The orderly development of mines so as to maintain production, - including the driving of main entries, air courses, and haulage roads, - requires a systematic program and, particularly, at some of the deep mines, it is most important that the operator have an assured market before any large investment in mine plant, underground equipment and development, cleaning plant, etc., can be justified.

The projection of plans and the scheduling of work require much careful consideration. Where, owing to the intermittent operation of the mines, it is necessary to maintain a relatively large working territory in reserve so that market requirements may be met almost immediately from rooms, pillars, or walls, the mining costs will be high unless unusually favorable roof conditions exist. Moreover, the investment of large sums in expensive underground machinery that will be operated only intermittently is hardly justified.

In normal years the total number of days operation is influenced by, (1) the seasonal demand for coal, (2) the problems arising in connection with the capacity of storage facilities at the mine, at storage yards, or on the customers' premises, (3) the storing qualities or weathering of the coal, and (4) the possibility of varying and adjusting the tonnage coming from the driving of entries and the production coming from rooms and pillars or walls.

In several of the coal-producing districts where the demand for coal fluctuates seasonally, it has been the practice for many years to drive entries in the summer months with a small crew and prepare the mine for a larger production from rooms and walls when the demand for coal is at its peak.

One of the obstacles to increased mechanization in flat seams and to the modernization of old mines generally, has been the large investment necessary in machinery which may be idle a large part of the year. The practical procedure has been to purchase and install cutting machines and mechanical loading devices that may be used both in driving entries part of the year and in producing from rooms, pillars, or walls when desirable.

One effect of entry-development programs of this type is to open a large yardage of entry prior to the time it is actually required and this imposes the burden of maintaining these entries, roadways, and air courses for a longer period of time. The practice of some of the companies has been to drive these entries as narrow as practical, to use shearing machines to shear on the ribs, and to timber the entries promptly where this may eventually be necessary, and to put suitable supports in air courses.

The selection of equipment to permit the balancing of production from entries during the summer months and from developed panels during the other months deserves most careful consideration.

DEVELOPMENT IN ROCK

The driving of permanent haulage roads in the country rock parallel to a vertical coal seam has been the established practice in certain Alberta mines for some time and has made it possible to maintain haulage and airways at minimum cost. While the cost of driving these rock openings is substantial, it has been found that in the long run this cost is less than the cost of repairing and maintaining the openings driven in a wide coal seam. Moreover, by this system the hazard of fires, explosions, etc., may be confined to the active working sections. The main haulage and airways are protected by rock barriers, explosion-proof doors, etc. This arrangement also permits more complete recovery of coal from the seam.

Where there are several dipping mineable seams, cross-measure tunnels or drifts may provide access from one seam to another. A considerable amount of this type of rock work has been necessary in some of the coal fields. Usually the broken rock must be taken outside, as the practice of distributing and stowing rock underground has not been considered economical.

The drilling, shooting, and rock loading practice developed for the above-mentioned types of work has been excellent.

MINE PLANTS

While no detailed examination of the mine plants could be made in the time available, a brief inspection of the surface equipment of the various mines was made. Underground haulage, hoisting, and pumping units were noted, having in mind the suitability and adequacy of the equipment and its condition as to maintenance and repair. Facilities for making repairs on the job underground, at the mine plant, and in the general repair shops were noted.

The equipment observed was in good operating condition, or was being taken care of by trained maintenance men. In

general, the underground equipment being used was well adapted to the work being done, except as to some of the mining equipment now operated by compressed air which should be electrified if improvements in ventilation and dust conditions are made.

Mine cars and haulages are being maintained in good operating condition.

SHOOTING, FACE PREPARATION, AND DEGRADATION

Different problems confront the coal operator in the various coal fields. When there is a market for lump and other large sizes and the coal is sufficiently firm to stand shipment, considerable pains are taken to make lump coal at the face, to load it without breaking, and to handle it to the railroad car or truck without excessive degradation. To accomplish this the coal may be sheared, shot with special powder or Cardox, and loaded by equipment that will break the coal as little as possible.

Cardox has been tested in about five mines, some of which are in the Medium Volatile Bituminous area and some in the Sub-bituminous B Rank districts. In the Medium Volatile mines, Cardox is used primarily in etnry work on account of the restrictions against the use of any type of explosives. There is an improvement in the percentage of coarse sizes to compensate in part for the increased cost of breaking down the coal due to the use of Cardox. In the Sub-bituminous B coal mines, Cardox is used in order to increase the percentage of lump coal and to produce firmer lump coal.

Owing to the high cost of service with the Cardox shells in Canada, inquiry is being made in regard to the suitability of the Airdox method of breaking coal. This method is being used successfully in eight mines in Indiana, four mines in Illinois, and one mine in Iowa. It is now being tested in several large mines in Pennsylvania, Ohio, and West Virginia where it is necessary to shoot both coal and rock.

It is claimed that Airdox has all the advantages of Cardox and the cost of supplies is substantially less than for Cardox; the other operating costs are reported to be no higher.

An Airdox installation consists of one or more electrically-driven special high-pressure automatic air compressors, steel and copper tubing to convey the air in and about the mine, valves, and Airdox tubes. The compressors are located on the surface or underground and the high pressure air carried into the working sections through the steel tubing, and from same to a crosscut near the working face through the flexible copper tubing. A blow-down valve is attached to the end of the copper tubing in the crosscut and 50 to 100 feet of copper tubing attached to the Airdox tube is also connected to the blow-down valve.

The high-pressure air-compressor, driven by a 50 HP electric motor, operates at six stages, namely, 30, 120, 360, 1050, 3400, and 10,000 pounds per square inch. No receivers are installed, the one-inch (O.D.) seamless-steel pipeline on the entries and butt entries serving as a reservoir for the distribution system. A pressure of 10,000 pounds per square inch is maintained. The annealed-copper tubing which extends from the entries into the working places is $3/8$ in. diameter and is tested at 20,000 pounds per square inch.

In the breaking operation, the face is drilled in the normal manner and the Airdox tube with copper tubing attached is placed in the drill hole. The blow-down valve in the crosscut is then opened, allowing the high pressure air to enter the Airdox tube. When the air pressure gauge on the blow-down valve indicates the desired pressure necessary to break the coal, the valve is shut off. The three-inch Airdox tubes have a capacity of 230 cubic inches and approximately one minute is required to charge and discharge a tube. After the tube is charged the valve is turned to the blow-down position and the high-pressure air in the copper tubing connected to the Airdox

tube begins to escape through the valve. When the pressure in this line has dropped a few hundred pounds, the Airdox tube discharges, breaking the coal. Normally, the shells, when discharged, are not ejected from the 3-3/4 inch holes. The Airdox tube is then placed in the next hole to be broken and the process repeated.

One Airdox compressor will supply enough high pressure air to break approximately 1,000 tons per eight-hour shift.

In mines in which the Airdox system is being used successfully, the practice is for the manufacturer to furnish the compressors with sufficient steel pipe for 3,000 feet of entry, 500 feet of copper tubing, and five Airdox shells without expense to the contractor and to charge for the service on the basis of the tonnage of coal produced by the system. The mining company furnishes the necessary repair parts for the compressor, etc.

The application of this method of breaking down coal may prove more economical and more efficient than Cardox in Canadian mines.

The problem of producing lump coal in flat seams has received most serious consideration, particularly where market for fine sizes is limited. Shearing of entries and rooms has been practiced for some years and the question of the extent of degradation of lump coal by the use of mechanical loading devices is being considered.

The economics of the situation can be developed only by field tests with full size units and under practical operating conditions.

In several of the fields where there are bony bands, dirt bands, or partings in the seam, the practice of cutting in these bands or partings has been developed. In such cases the cuttings are generally wasted manually underground. If cleaning plants are to be considered for some of these operations, it may be found advisable to consider full-seam mechanical mining and remove the bands, partings, etc., in the cleaning plant.

M E C H A N I Z A T I O NEffort Saving

In considering the underground work that can be mechanized, the first objective should be the safety of the men, the second, reduction of physical effort, and, the third, increased production per man hour.

Following the mechanization of underground haulage, and of cutting and drilling the coal, the underground operation that has been receiving most attention in the last 25 years has been the elimination of hand shovelling to as great an extent as possible. Loaders, scrapers, duckbills, conveyors, pit-car loaders, etc., have been designed for various conditions and applied quite extensively in a number of mining districts. These mechanical loading devices have been applied most extensively in room and pillar mining in flat seams and in the loading of rock in cross-measure tunnels. For longwall mining, there are several well-designed machines which are now being used successfully in Britain under conditions somewhat comparable with those in the flat seams of Western Canada.

In Western Canada, the most arduous underground work appears to be in car pushing, pan shifting, and moving timber in steeply pitching coal seams.

With the installation of certain types of loading equipment, the car pushing can be eliminated. On longwall work where pan shifting is a difficult problem, plans now under consideration may reduce the amount of physical effort required during the life of a wall.

Where duckbills are used in advancing wide places, power is being applied to control the swinging of the duckbill across the face and to advance the pans, etc., as the face is advanced. This innovation is a marked improvement toward reducing physical effort in this type of work.

The use of a mechanical device in connection with undercutting machines to remove the cuttings from the kerf reduces

the manual labor, increases the effectiveness of the undercut, and should be a step toward the loading or disposal of the cuttings immediately as they are made.

Where large heavy posts and crossbars (wood or steel) are set there is a large amount of heavy lifting, sometimes under difficult and hazardous conditions. The use of power machines and tools to do this heavy lifting, to place the post or crossbar in proper position for setting, and to hold it securely while it is being anchored or fastened in place is receiving attention and the successful application of such equipment will be welcomed.

The recovery of timber and steel roof supports from worked-out areas is receiving more attention and permissible power-driven post-pullers are being developed for a variety of conditions. These will reduce the labor, eliminate serious hazards, and reduce the supply cost.

In connection with track-laying in mines using track cutters and loaders, considerably progress is being made in the drive to eliminate the heavy lifting in moving and placing rails, frogs, switches, etc. Power tools, etc., are being mounted on specially designed trucks and cars for track-laying and track-recovery crews.

Problems of Face Mechanization

Mass-production methods of modern factories may be thought of as typical of a mechanization program, but as a matter of fact the underground conditions under which coal is produced are not comparable to a factory. First, a factory is out in the open, accessible from all sides, and remains day after day and year after year on its permanent foundations. Second, while the weather and the seasons change, the general physical conditions surrounding the factory remain the same. In contrast, when a coal mine is mechanized, the roof, the floor, and the seam conditions may change from day to day, and

the whole producing section, the longwall or the panel advances or retreats and is, in fact, a production unit (or factory) that is ever on the move.

Therefore, while production engineering methods are needed in a mechanized mine or section of a mine, such methods cannot be applied in the same manner as in a factory. As compared with the production line in a factory, the work in a mechanized mine is generally more interesting and more diversified. In the long run, men prefer this type of work because it is generally safer and less strenuous than the routine loading of coal with a shovel.

The modernization of mine plants and the introduction of expensive machinery require multiple-shift operation of surface and underground machinery and of the working places that produce coal. The hourly and daily tonnage produced from each working place is one of the best indicators of efficient operation. This requires not only good planning, well-maintained equipment, adequate and reliable power, but also well-trained and reliable workmen who work every day that the mine works.

In order that excessive peak loads on the power system may be avoided, it is necessary to schedule the use of power on any extensive system or hook-up. With mechanized mining, there will be an increased use of power for certain operations and a more concentrated load in the producing sections of the mines during certain hours of the working shift. Scheduling of work is vital, and, as stated, the success of the mechanized work depends upon the coordination of the efforts of a team of skilled men.

Fundamentals Necessary in Successful Mechanization

In the mining districts where mine mechanization has proven most successful, certain fundamentals are recognized generally:

1. Both management and labor must share in the benefits of mechanization.

2. Management must be free to plan the mining work, change mining methods, direct the working force, and assign men to various classifications of work, as occasion requires during the working shifts.

3. To justify large capital investment in various types of mining machines, these machines must be productive at least two full shifts a day and must be kept in good working order by well-trained maintenance crews. In the early development days of American mine mechanization, failures of machines, partly due to indifferent maintenance, resulted in the serious evil of sending operating crews home and paying them for the actual hours worked, unless other work was available (which generally is not the case in a completely mechanized mine.)

4. The operators of mechanical loading devices and the men who maintain them, together with those who cut, drill, and shoot the coal should be well-trained, well-paid men who are dependable and want to work every day. They form a picked crew in which team-work counts.

5. Datal rates should be the uniform basis of pay and the establishing of tasks and the limiting of the output of machines and of men are not tolerated.

In order that the evils of the piece-rate system may be appreciated, the following conclusions, based upon 25 years' experience, should be noted:

1. In mines where coal-seam conditions vary, there is difficulty in getting good men to work in the poorer places when they are employed on a tonnage or a piece-work basis.

2. There have been many improvements in mining machinery since the first machines were installed, and there will undoubtedly be a great many more improvements in the post-war period. This is true also of the auxiliary equipment

and of mining technique. The use of larger mine cars, larger shuttle cars, larger-capacity conveyors, all result in the more effective use of face equipment without any increased effort on the part of the machine operators. Many loading machines are not operating a sufficiently large percentage of the time, through no fault of the machine operator, and substantial increases in output can result from improved management with little extra effort on the part of the loading machine operator.

3. Cutting, drilling, and shooting practice can be supervised better when men work on a day basis than when they are crowding a machine to get tonnage.

4. Where systematic face-timbering is required, it is difficult to get tonnage men to set and re-set necessary roof supports. Men work more carefully and more safely when they are operating equipment at a proper tempo and not taking risks to make a quick clean-up in a minimum number of hours.

5. In both development work and pillar work on breaklines, it has been found more practical to organize the work on a day basis.

6. Where there are partings in the seam and the machine must work part time in coal and part time in waste, it has been found impractical to work on a tonnage basis.

7. The management must have full authority to vary the size of crew, switch men about when necessary, and do various things to secure efficiency. On a tonnage basis this cannot be done without causing confusion.

8. When working-places are double-shifted under tonnage-rate conditions and there is more or less deadwork to be done, it is difficult to secure a fair tonnage from both shifts, as the tonnage men on one shift wish to load all the coal possible and leave the preparation and deadwork for the succeeding shift. When tonnage men clean up a cut near the end of a shift, they often do not move the equipment so that the men on the next shift

may start production immediately upon arriving at the working-place.

9. Maintenance of equipment, economy in use of supplies, recovery of supplies, etc., all play an important part in securing low costs. Tonnage is only one factor to be considered in efficient mechanization.

10. When the piece-rate system is employed and equipment fails, the mine worker loses, sometimes due to inefficient management. When equipment fails and production stops on the day-pay basis, the company loses and not the man, so that such interruptions of production become a real challenge to management.

For these reasons, as well as others that may be mentioned, in the interest of the working force, as well as the management, it has been found most desirable in mechanized bituminous coal mines to employ the system of paying by the day and hour.

Importance of Seam Conditions

Representative working places in a number of mines of Western Canada have been inspected in order to determine in a general way the possibility of the more extensive application of mechanical loading devices.

In many parts of Western Canada due to the pitch of the beds, there is no occasion to use mechanical loading devices in rooms as the coal will run from the faces to the chutes or loading stations. Where coal will not run on slides or chutes, shaking conveyors or scrapers serve to transport the coal to the haulage road. Mechanical loading devices may be used effectively when there is sufficient tonnage of broken coal or rock in a place, where roof conditions permit a span of sufficient width for the manipulation of the machine, providing the material loaded can be hauled away sufficiently rapidly to permit the machine to operate a fair proportion of the time. In steeply pitching seams, it may not be economical to use an

expensive loading machine to drive a single entry as the tonnage to be loaded per cut of advance may be relatively small; it depends largely on the possibility of cutting and loading several times per shift in such a single working place.

In the flat seams where there is adequate height, there is a much better opportunity to use various types of mechanical loading devices effectively, providing roof and floor conditions are favorable.

Duckbills

This type of equipment has been used extensively in Western Canada in both development and room work. Much of it is operated by compressed air. In the Drumheller division several of the mines are equipped with shaking conveyors and duckbills, several have equipment under order and several others are planning to mechanize completely with duckbills.

In the Lethbridge area one mine will be mechanized completely with duckbills. Shaking conveyors will discharge on a 2000 ft. 36-in. belt conveyor. Mechanization is being considered for a second mine.

One mine in the Edmonton division will be mechanized 100 per cent with shaking conveyors and duckbills.

In the Crowsnest area in Alberta several mines have installed duckbills, but usually the shaking conveyors are loaded by hand. The Crowsnest mines in the Fernie-Michel area have used duckbills successfully for some years.

On Vancouver Island several duckbill loaders are used for entry development.

Power Duckbills

Recently there has been developed a type of duckbill which requires much less manual labor because the duckbill can be swung across the working place under power; whereas when the standard duckbill is moved across the face, it must be pulled by hand or by another machine or pushed by means of a bar.

This improvement not only reduces the labor at the face and increases the effective capacity of the duckbill, but permits the more convenient use of power in shifting pans, the duckbill itself, and auxiliary equipment and supplies. This is important particularly in working in rise workings, as well as where there is a cross-pitch.

Hand Loading on Conveyors

While the use of duckbills and special loading pans is considered mechanical loading, and hand-shovelling on conveyors is not, there are some room and pillar mines where hand loading on conveyors has proved to be more efficient than any other method. This is true particularly in areas where the tender roof may require closer timbering than would permit the moving of loading machines, shuttle cars, and the use of duckbills, angle-troughs, etc. This practice also permits the more complete extraction of pillars and the manual removal of dirt bands, partings, and other impurities in the seam.

The use of shaking conveyors on longwalls permits great concentration of workings and the production of large tonnages from single haulage roads. There remains, however, the job of shovelling onto conveyors, which, under the conditions prevailing in the longwall face, is very difficult to mechanize.

In various mines in the Crowsnest fields, the Coal Branch, Vancouver Island, Lethbridge, Drumheller, and Edmonton shaking conveyors have been used without duckbills, both where the coal must be shovelled on the conveyor and where part of it falls or runs onto the conveyors.

Scrapers or Slushers

These have been used extensively and successfully in many hard rock mines and in the Pennsylvania anthracite fields, but their use in bituminous coal mines of the United States has been declining rather than increasing. It should be noted,

however, that there are a number of very special applications of scrapers which are particularly successful. In one application the equipment consists of steel boxes with self-dumping bottoms, a self-centering deflector (which enables the box to be pulled to any desired angle or position), and a loading ramp over the entry on which the boxes are pulled by a two-drum scraper. The boxes are only 12 inches high and may be loaded by hand or by mobile loading machine in low-height coal. With two boxes in service, the loading of one box may continue while the other box is being dumped. On account of its flexibility, this type of equipment has advantages in pillar-work in low coal.

In several mines of Western Canada where the use of electricity is restricted, scrapers are being employed both on longwall faces and in rooms in conjunction with conveyors.

The scraper may be used to transfer material for distances up to about 150 feet.

Mobile Loaders

Detailed description of the various types of the mobile loaders and of necessary auxiliary equipment is unnecessary in this connection. Practically all of the loading machines in use in coal mining are powered by electricity but some of the smaller track-loaders are operated by compressed-air. In general they may be classified as (1) track-mounted, (2) caterpillar-mounted, and (3) rubber-tired. The last is not important at this time, but there are two rubber-tired machines in the experimental stage. (Reference will be made later to combined cutting and loading machines and to other machines designed for longwall work).

The Track-mounted type of loader has been installed extensively in the United States and can be used where grades permit the operation of standard electric locomotives. These machines are usually of large capacity and will load coal or rock into mine cars. With swinging rear conveyors they can, when occasion requires, dispose of rock alongside the roadway

back from the face. Such machines may be used where the pitches are low, or for driving drifts in coal or doing cross-measure development in rock. For this latter work, however, it is probable that machines designed for rock would prove more serviceable.

In recent years, a number of mines in practically flat seams in the United States have been equipped with large eight-wheel mine cars which may be as much as 18 feet long and may hold 12 tons of coal. These cars are generally used in conjunction with track loaders which have a boom long enough to load the mine car. The large car has much to recommend it, particularly where there are long hauls and there is good track. These cars may, of course, be loaded by conveyors or from chutes and may be used to advantage at shaft mines where a suitable rotary dump may be installed for dumping into a bin for loading skips.

The pitch of the coal seams is one of the most important factors in determining the extent of the practical application of caterpillar-mounted loading machines. If one unit is placed in an opening driven on the strike and the pitch is so steep that the machine cannot be moved quickly and conveniently to a nearby working place, then the machine will have to operate in one face only. The capital investment for a cutting machine and a loading machine would not be justified generally on account of the small tonnage that can be prepared by one cut in a place. When the equipment can be moved so that it can serve at least two places, the capital cost may be justified, providing other operating costs are not too high.

The loading machine of this type may be used to load into (a) standard mine cars, (b) rubber-tired shuttle cars, or (c) conveyors.

When conveyors are installed to take the coal from the loading machine, one machine generally services two places (sometimes three). When the machine is loading into mine cars,

the number of places should be adequate to keep the crew busy performing their various operations, without causing one operation to wait for another (unless small crews are used and the skilled men are expected to do any class of work necessary).

With mobile loading machines loading onto conveyors, the mine roof supports may generally be planned to permit the movement of the small-size loading machine which is usually selected for this class of work.

Where roof conditions permit travelling roads to be 10 feet wide and the pitch is not too severe, rubber-tired shuttle cars can be used to receive coal from the loading machines. These self-unloading cars travel along the roadway or through the room to discharge the coal onto a belt conveyor, into a transfer elevator which loads into mine cars, or directly into mine cars.

One of the most important factors in the use of mobile loading machines is the transportation of coal away from the loader. The loaders, depending on their size and power, will load coal at the rate of 1 to 8 tons per minute. If the coal is loaded by the machine on a conveyor, the capacity of the loader will be limited by that of the conveyor and usually it is not to exceed 1 1/2 tons per minute. If the machine loads into mine cars, running on rails, the rate of loading will be limited by the size of the mine car and the time required to switch out the loaded car and set in another car. With large cars there will obviously be greater opportunity to load out the coal quickly, if there is only a short haul to the nearby sidetrack. When the mine is handicapped with small mine cars, it may be possible to service the caterpillar-mounted loading machine with rubber-tired trucks or shuttle cars of capacity greatly in excess of the mine car. These shuttle cars may carry the coal to the entry and transfer the coal to a trip of cars or to a belt conveyor.

These electric-powered shuttle cars may have 2 to 10 tons capacity, may be driven either by storage battery or trailing cable, and generally are self-unloading. They are operated by one man and travel from 3 to 6 miles per hour, depending on the grades, the load carried, the size of motors, clearances, character of floor, etc.

The narrowest shuttle cars being built are 71 inches wide and can be operated where the travelling width is 9 feet.

The foregoing types of equipment have been proven and are used extensively in many coal districts. At the present time track-mounted loaders are being operated successfully in Canada but no caterpillar-mounted machines and rubber-tired shuttle cars have been installed.

Longwall Loading Machines

There are several types of equipment, chiefly of British design, which are being used on longwall work in Britain. The most successful of those is a combination cutter-and-loader which has been in the process of development for a number of years. Since 1934 the machine has been proving itself under average British longwall conditions. The original machine consisted of a coal-cutting machine and a mechanically-operated loader, working together as a unit, and so designed that the unit would cut and load alternately forward and back along a wall. In order to eliminate the boring and shooting, it was thought advisable to introduce a shearing element.

In 1941, the Bolsover Company at its Rufford Colliery undertook to assist in the development of the machine for its conditions. A new machine was designed and put to work in December 1941. The officials of the Bolsover Company said,

"We were then, and still are, of the opinion that any method of mechanical loading on a longwall face which relies upon blasting as a means of coal preparation is not likely to be of general application, nor is it likely to produce the proportion of large coal necessary to enable the system to work as a commercial proposition."

Under their roof conditions they decided they must avoid heavy blasting, partly on account of the uncertainty in keeping the holes from being bottomed against the tender roof.

Experiments were continued for some months and much valuable information was collected as to the mechanical features of the machine, the best methods of operation, and roof control under their conditions. A redesigned machine was installed in February, 1943, with the loader portion so designed that it could be connected to a standard coal-cutter. The new machine was an improvement and the output per man for the crew as a whole improved.

The seam worked at the Rufford Colliery is at a depth of 2020 feet. The full section of the seam, including dirt bands, is 4 feet $9\frac{1}{2}$ inches. Above this is 1 foot 2 inches of coal which is left to form a roof. The floor is hard. The face is 130 yards in length. Along the face there are 3-yd. packs with 8-yd. waste which system provides good roof control. Two chocks are erected in waste. Chock releases are used. The roof at the face is supported on corrugated steel bars each 7 feet long set at intervals of $4\frac{1}{2}$ feet on two steel props.

The details of the operation and labor force required are set forth in a paper recently submitted to the Institution of Mining Engineers by T. E. B. Young and W. H. Sansom. (Trans. Inst. Min. Eng., 1945, Vol. CIV, p. 191.)

In a communication of August 24, 1945, from the Managing Director of the company manufacturing this machine, he wrote, after specifying a limitation of 15 per cent gradient as the maximum for operation of the cutter-loader, with the machine operating in both directions:

"Any steeper gradient than this will require further consideration because of the following points:

(1) There may be a tendency for the cutting jibs (bars) to become fast, due to gumming (cuttings) following the jib when cutting down-hill on very steep grades.

(2) There may be a tendency for the coal to fall beyond the loader when loading up-hill, but this

depends on the height of the seam.

(3) It may be possible, on steeper grades than 15 per cent, to cut and load up-hill and flit back, or it may be possible to arrange a machine so that the loader itself remains substantially horizontal whatever the grade.

A thin-seam model is now being designed which will have a maximum height of 2 feet and which will be fully powered to operate in seams from a minimum of 2 feet 9 inches. With this new design, it is envisaged that we shall be able either to undercut, overcut, or both, and that the turret will be of the raisable type so that this machine may be able to deal with all seams from 2 feet 9 inches upwards. As in the present machine, a back shearing device will also be fitted."

This longwall cutter-loader deserves most serious consideration for those longwall mines, or portions of mines, where the pitch of the seam and the roof conditions will permit its efficient use.

General Observations on Mechanical Loading

The mechanical loading machinery and mechanical loading methods used in the United States were developed for room-and-pillar mining and primarily for work in flat seams. The high tonnages produced per man employed at the face in the United States mechanized mines cannot be used as a basis for setting up estimates of possible production, except where the mining conditions are known to be comparable and where the number of working days and shifts per year are substantially the same.

Depth of workings, thickness and pitch of the seam, and the possibility of using electricity, instead of the less efficient compressed air, are all important factors influencing the output per man employed and the operating cost per ton.

The availability of an adequate force of trained men is a vital factor in the successful use of machinery. Due to the isolation of some of the mining communities it has been difficult to secure an adequate number of trained and skilled mechanics to maintain equipment which frequently must be repaired on the job. In comparing tonnage records with those

made elsewhere in mechanized mines, it should be realized that remoteness from the source of supplies and the skill of the operating and maintenance men all play a large part in obtaining high production tonnages and low operating costs.

Where there is a large pool of trained labor and mechanics, these men prefer to work in mechanized mines, generally because such mines have better working time and because most of the younger men prefer to work with machinery rather than to perform ordinary manual labor.

It should be noted that in the submission of the Western Canada Bituminous Coal Operators' Association presented at Calgary in April, 1945, the chief reasons for mechanization of mines were set forth (p. 67) as follows:

1. Safety
2. Elimination of arduous physical labor
3. Possible elimination of friction with labor

Most of the mines included in this group are in steeply pitching seams and have mining conditions that are much different from those existing in the practically flat seams of Eastern Alberta and those of the Appalachian and Middle Western coal seams of the United States. The conclusions presented in the submission deserve most careful consideration:

"Safety. The present contract system puts a premium on pillar extraction, which under pitching conditions is the most dangerous phase of production. Probably 50 per cent or more of the coal produced at present comes from pillars. With mechanized means, if coal could be produced in tight work at a price comparable to pillars, it would be possible to reduce the size of pillars and have 75 per cent extraction by narrow work, so reducing the danger of pillar extraction by half. There are also fewer chances for accidents at a mechanized face since it is level and thus less subject to falls of coal. The men, instead of working at the face proper, are for most of the time behind the controls of the various machines, that is to say at least a few feet away from the face. Falls of roof and coal at the face are the greatest mine hazard.

Since mechanization means closer supervision at the face, there is better assurance that safety rules will be enforced.

"Less Arduous Physical Labor. Mechanization means the elimination of arduous physical labor, and as such holds attraction to the men. The young men who will come back from overseas are now trained to the use of intricate machinery, and like it because it requires intellectual ability; mechanized mines will appeal to them, and may attract more of that desirable class of labor than the non-mechanized ones. Skilled labor for hand-mining is getting scarcer, and our face crews are at present composed of old men whom it will be difficult to replace. A mechanized crew is easier to train rapidly because of simple cyclic operations, and of safer operating conditions (flat work, reduced pillar work) which do not require the same long, practical experience.

"Possible Elimination of Friction with Labor. It is hoped that mechanized mining will remove at least part of the causes of friction with labor. The present agreements are complex because the contract rates have to meet varying conditions. The contract rates are a constant source of suspension, bickering and hostility between Management and Union. On the contrary, a mechanized mining structure is much simpler as it consists of only a few day rates and those are identical at all mines in the district."

The submission also contained the statement that probably there is no financial advantage in mechanization in Western Canada bituminous mines over hand-mining with contract rates. The reasons given include the following:

1. High cost of equipment
2. High cost of explosives
3. Compulsory use of compressed air
4. Steeply-pitching seam conditions

The physical conditions of the seams are known and the only factors that can change to the advantage of the Operators are changes in the pitch of the seams and improvement in roof conditions. In some sections the seams locally become flatter with depth and may become better suited to the use of mechanical loading devices.

The cost of equipment and explosives may be reduced and the economies effected thereby may be sufficient to make up for the handicap of the requirement of using compressed air where gas and dust conditions are considered too hazardous.

In flat seams east of the mountains, both in Alberta and in Saskatchewan, the physical conditions are more like

those of the relatively flat seams of the Middle West and Appalachian Regions of the United States, but due to the marketing problems there has not been the incentive to mechanize nor the opportunity to make comparable savings.

In the flat beds of Alberta and Saskatchewan there would be some of the same objections raised by the Western Bituminous Operators, namely, the high cost of equipment and of explosives, but the regulations regarding the use of electricity do not restrict the use of permissible electrical equipment. Therefore, if market conditions warranted, there might be substantial economies effected by the extensive use of mechanical loading devices and the auxiliary equipment usually used in conjunction with mechanized mining.

Considering the handicaps encountered both in physical conditions in the seams and the intermittent operation of the mines in normal times, the progress made in experimental work has been commendable and some of the operations have done everything that was possible with the equipment available under existing conditions.

PREPARATION PLANTS

Elaborate cleaning plants have been installed at a number of mines to prepare the coal to meet market requirements. Details are given for some of the plants and flowsheets for several of most recent construction.

Some of the cleaning plants have been installed for many years and the Engineers and Operating officials of Western Canada have made many substantial contributions to the technology of coal preparation.

Attention is directed to the descriptive notes on the plants of the following companies:

Canadian Collieries (Dunsmuir) Limited; Coal Valley Mining Company, Limited; Crow's Nest Pass Coal Company, Limited; Hillcrest Mohawk Collieries, Limited; Mountain Park Coals, Limited; Brazeau Collieries, Limited; Sterling Collieries Company, Limited; and West Canadian Collieries, Limited.

BRIQUETTING AND COKING

A comparatively large tonnage of coal is being briquetted in Western Canada in order to provide a profitable outlet for the fine sizes which must, of necessity, be made in the mining of the friable bituminous and subbituminous coals. In Alberta the production of briquettes in 1944 amounted to 253,592 tons. This tonnage came from the Cascade, Mountain Park, and Nordegg Areas. The practice followed in these plants and the type of equipment used is somewhat the same. Some details of the equipment installed and the practice followed at the Nordegg plant are given in the notes on the Brazeau Collieries, Limited.

There are coke ovens at several plants, but the total tonnage of coal being coked is relatively small. The output of the beehive coke ovens in Alberta in 1944 was 67,821 tons; while the tonnage of coke produced in British Columbia in 1944 was 75,317. In 1938, ten Curran-Knowles by-product ovens were installed at Michel and in 1942 an addition of ten ovens was made.

Some beehive ovens are in operation at Michel, the total daily output from all ovens being 250 tons of coke.

SAFETY AND MINE INSPECTION

The accident record of the coal mines of Western Canada compares very favorably with that of the bituminous coal mines of the United States. The citation of statistics and records is not relevant. In general, the mining conditions in Western Alberta and in British Columbia are much more difficult than those prevailing in most of the bituminous coal fields of the United States.

While no effort was made to appraise mines from a safety standpoint, many of the essential factors contributing to making mines safe were noted. In general, the cooperation of management and of the mine workers in the interest of safety was commendable and the standards and regulations established by the several Departments of Mines were being complied with.

In many instances the inspections were made in the company of one or more officials of the Departments of Mines, as well as of officials of the mining companies. Matters relating to safety, elimination of personal hazards, and the opportunity to improve working conditions generally, were discussed. These discussions included particularly the planning of mining development, mine ventilation and dust control, transportation of men and supplies, roof control, and the use of electric and Diesel equipment.

TESTING MINING EQUIPMENT

If electrical equipment is used in gassy and dusty mines, it is necessary to have this equipment designed and built so as to be flameproof. The design of the equipment and its manufacture and assembly must meet the standards established. At present the Provinces have accepted the standards of the British Government Testing Station at Buxton and of the United States Bureau of Mines. These stations issue approval plates which are placed by the manufacturer on the assembled machine and the plates

may be attached only to the particular machine for which the plate was issued originally.

At the present time there is no Canadian station at which tests of such equipment may be made. The large electrical companies in Britain and in the United States could manufacture in their Canadian subsidiaries flame-proof equipment of exactly the same design as that made by the parent company, if there were a testing station in Canada to grant approval.

The Provincial Mines Branches must now approve or reject equipment without testing facilities. They are guided by the standards and tests of the British and United States stations. It has been suggested that there would be an incentive to Canadian electricians and engineers to put more effort into the invention and improvement of mining equipment if approval could be granted within Canada.

In order to meet this situation it has been proposed that a Mines Bureau be set up under the Research Council of the Dominion of Canada and the necessary station and staff provided to test and approve mining equipment. The approval by the Dominion Testing Station should be acceptable to all provinces in Canada.

RESEARCH

This subject has been receiving a great deal of consideration by the coal producers and consumers of the great industrial nations.

In a paper recently presented before the Canadian Institute of Mining and Metallurgy[#], Mr. W. A. Lang discussed, "Research and the Coal Industry in Canada, and Mr. H. F. Hebley gave a similar paper before the Mining Society of Nova Scotia^{##} on "Applied Research in the Bituminous Coal Industry". These

[#] Trans. Can. Inst. Min. and Met., Vol. XLIX, 1946, pp. 51-62.

^{##} Trans. Can. Inst. Min. and Met., Vol. XLVIII, 1945, pp. 539-566.

papers set forth in detail the fields of research now being explored and suggest that new work should be done.

The Submission presented by the Minister of Mines and Lands of Alberta, after reviewing the splendid work done on Alberta coal resources and coals by the Research Council of Alberta, emphasized the need for additional research and more intensive work on certain subjects. The subjects enumerated in this Submission were: Coal Reserves, Chemical and Physical Studies of Coal Preparation, Storage of Coal, Combustion of Coal, and Processing of Coal.

In the Summary of Recommendations of the Submission, the Minister proposed that the Dominion Government be urged to institute large-scale experiments on utilization and that the Dominion Bureau of Mines conduct continuous research into all phases of coal mining in Canada with special attention to improved methods of production and increased use of coal. To effectuate this work it was proposed that a branch of the Bureau of Mines be established to work in cooperation with the Research Council of Alberta.

Another timely suggestion made in the submission is "that research liason committees be formed to initiate and advise on researches, one committee for mining and geological problems, one for scientific and technical problems, and one for economic and marketing problems."

These recommendations merit most serious consideration. Most valuable work has been done by existing agencies. The practical accomplishments and contributions of the British Safety in Mines Research Board, of the United States Bureau of Mines, and of Bituminous Coal Research, Incorporated, are evidence of the fact that the coal industry has problems and that research can help the industry.

Some of the problems confronting the Canadian coal mining industry are common to those of other lands and co-operation with the research activities of other countries has

been of mutual advantage. The problems of the industry are becoming more serious and every effort should be made to give technical assistance and guidance wherever possible and such assistance and guidance should be coordinated in order to be most effective.

It seems proper to call attention to one phase of research that is difficult to organize and operate, namely, that of underground production. While most valuable work has been done by the Provincial Mining Departments, the Bureau of Mines, and the various operating companies, there are an increasing number of problems which can be solved only as large-scale experiments or tests under practical working conditions in the mines.

With the increase in depth and length of haul, the power requirements increase and the actual time the mine worker spends at the face is reduced greatly. To secure increased production per man-hour safely and without drudgery is vital.

The mining of gassy, thick coal seams has presented difficult problems for many years and much progress has been made; but, undoubtedly, there will be an increasing proportion of the tonnage coming from the deeper sections of the mine.

With the continuing reduction in the number of young men entering the mines, it is indicated that to secure the necessary tonnage in the available working hours, an increased amount of machinery will be required. Decisions will have to be made following adequate trials in the developing of safe mechanized mining practices and in the selection, or design, of suitable equipment.

It may be assumed that, with increasing depth, the problems of roof control, efficient recovery of as large a percentage of the coal as possible, and control of explosive gas and dust will become more difficult. In order to produce coal under such conditions at competitive costs, even greater efforts will have to be made by all interested parties, including the operators,

mine management, labor, engineering, and the designers and manufacturers of equipment.

Among the subjects that may be suggested are, - research in blasting materials and devices, methods of roof support, methods of cutting and drilling coal, studies of degradation of coal (where lump coal is desired) by various types of loading, etc., equipment for transporting coal in secondary and primary haulage, avoidance of bumps and outbursts of gas, dealing with heating and the spontaneous combustion of coal, control of mine fires, avoidance of mine explosions and limiting their effects, efficient use of compressed air, safe and efficient use of electrical machinery, application of Diesel engines underground, improved underground transportation of men, improved mine lighting, control and handling of mine water, and improving methods for supplying air to the working sections.

It is timely, therefore, that in addition to conducting research on coal and coal utilization, intensive and continuing laboratory and field work be carried on to reduce the hazards of the underground worker, to improve the production of men and machinery, and to secure the most efficient operation of the mine plant as a whole.

EDUCATION AND TRAINING

While good work has been done by the existing agencies in training men for the coal mining industry, with the increased use of machinery and power both underground and on the surface and the necessity for preparation and processing of coal, there will be an increasing need for men with scientific and technical training. It has been pointed out that with fewer young men entering the coal mining industry, the average age of those employed is mounting slowly but surely. Additional men are required continually to add to the available force of mine managers, overmen, and firebosses and, with the encouragement being given to men returned from the armed forces, there should be a considerable increase in the number of men in training courses as now

offered by the universities and the Department of Mines.

It has been suggested that at this time especial effort be made by the mining companies, the Union officials, and the officers and employees of the Department of Mines to secure additional qualified men to take the appropriate training courses for official positions in the coal mining industry.

During the War, many young men received intensive training in the operation and maintenance of various types of mechanical equipment. The manual training and the technical instruction these men received should interest them in continuing to do work of a mechanical and technical character. While many of these men may return to their former work which may not have been in coal mining, they may decide to start work of a mechanical nature at the coal mines, if the opportunities along mechanical and electrical lines in the coal mining industry are presented to them.

Where possible, manual training courses for boys and young men should be provided in the mining towns, either in connection with the established public school system or under the auspices of district or local organizations, or by the mining companies.

In the Submission by the Province of Alberta, reference is made to the 1939 legislation in Alberta making it compulsory for mine electricians to be holders of mine electricians' certificates before they can take charge of electrical installations in and around mines. The statement was made that there is a shortage of trained electrical technicians. To train men for this work, it would be helpful if suitable training courses were offered in the mining communities where men who are interested might be prepared for the required examinations.

SASKATCHEWAN

The coal measures of Saskatchewan occur in the Tertiary and Upper Cretaceous formations and lie practically flat except for a syncline under the Souris River Valley. The seams outcrop along ravines and on hillsides.

Most of the Tertiary coal is lignite and the seams vary in thickness up to 20 feet. The Cretaceous coals occur in the Belly River formation of the Upper Cretaceous and generally are 200 to 300 feet below the surface. There are two seams, one averaging 4 feet thick and the other 8 feet. These seams are not uniform in thickness or regular over any considerable area. In quality, the coal is lignite and subbituminous.

Mining of lignite on a small scale began as early as 1887 and the production has fluctuated from year to year and in recent years has approached 2,000,000 tons per year. The total production since the start of mining has not exceeded 40,000,000 tons and at the present rate of production the known reserves of lignite would last hundreds of years.

The Souris River coal area is the best known coal-producing field and in it are the two largest operations. Much of the production at the present time comes from stripping operations located on the upper seam. Of the eighty-six operations reported in 1944, ten are strip pits. In the Estevan where the seam that is being stripped averages 5 feet in thickness, the lower seam which has been mined more extensively averages about 9 feet.

It has been stated that this Province has adequate reserves of coal to supply all its present markets or any conceivable increase in these markets for a long time to come. #

The essential problem is finding a year-round market for lignite, particularly the small sizes. Due to the poor demand for coal in the summer months, there is irregular operation

Brief presented by the Province of Saskatchewan, April 19, 1945, p. 30.

and employment. Underground operating costs are expensive due to the irregular work, for the mine plant must be operated below capacity much of the time.

Improvements in plant and equipment which might be made to secure more efficient operation are not warranted under the conditions prevailing.

SOURIS AREA

Western Dominion Coal Mines, Limited.

This company operates a large stripping pit in the upper lignite seam, which ranges from 5 to 7 feet in thickness. Formerly a shaft mine was operated in the lower seam which, at the shaft, is 150 feet deep.

The thickness of the overburden varies generally from 15 to 24 feet but at certain points it reaches a maximum of 50 feet. Generally, the loading of coal is done in eight hours but during the rush season the pit produces coal ten hours per day with the stripping of overburden on a twenty-four-hour basis.

One 2-3/4 cu. yd. shovel produces 2000 tons of coal in ten hours, while the 3-1/2 cu. yd. shovel produces 3000 tons. The coal is loaded into seven 2--ton Euclid trucks which haul to the tippie where the coal is screened, no picking being necessary. The following sizes are made: Plus 8 in., 4 by 8 in., 2 x 4 in., 1/2 by 2 in., and minus 1/2 in. At times they make 1/2 by 1 in. and 1 by 2 in. The 1/2 in. minus is 15 per cent and is stored seasonally as there is only a limited market for it. The coal is shot lightly with black powder, the holes being spaced about one to 80 sq. ft. The reported analysis was 30 per cent moisture, 6 per cent ash.

The dragline for stripping overburden is Bucyrus-Monigan (5 W) with 5 cu. yd. bucket working to a 90 ft. pit. The other stripper is a Bucyrus-Erie shovel (320 B) with 10 cu. yd. dipper. The cleaning of the floor is done with bulldozers.

From the one pit there is a round trip haul of 4.5

miles and from the other about 2 miles. The transportation, as well as the stripping and loading operations, functions very efficiently.

There are 142 persons employed, including the office force, to produce 5000 tons daily.

Manitoba and Saskatchewan Coal Company, Limited.

This company operates a shaft mine and a stripping plant.

Shaft Mine

The 65-ft. shaft was put down in 1907 to the lower seam.

The seam is practically flat. The coal is clean and quite uniform in character. About 18 inches of coal is left in the bottom, due to the soft clay beneath the coal and 2 feet of top coal is left as roof. This stands very well generally, but some places on the intake air it dries out in summertime and falls. The coal is woolly lignite and does not shoot well. The faces do not trim well in spite of shearing. The analysis reported was 6 to 7 per cent ash and 30 per cent moisture.

Cars and Haulage

The track is 42-in. gauge with 40 to 56 lb. rail. Some rooms are laid with 20 lb. rail. The wood cars hold $2\frac{1}{2}$ tons and are not suited to mechanical loading.

The trolley locomotives include the following: One 10-ton, two 8-ton, and one 5-ton. Five horses are used to haul from two loading machines and the pit car loaders. One horse hauls empties on the bottom.

Mining Method, Machinery and Production.

Room and pillar mining has always been used, no pillars being mined. Rooms are now being turned at 45° from the panel entries, with 24-ft. width on 35-ft. centers.

The cutting equipment is as follows:

- 1 - CIU (cutting and shearing)
- 2 - Arcwalls
- 2 - Shearing machine (old type breast)
- 1 - Shearing machine.

The loading equipment includes:

- 3 - 260 trackloaders (2 in service)
- 1 - 460 trackloaders
- 12 - Pit car loaders (8 in service)

The drills are hand-held electric.

The electric power used is 200 A.C. for cutting and drilling and 250 D.C. for haulage and loading.

At the time of the inspection the mine was producing 800 to 1000 tons and there was a shortage of about 50 men. During the early summer this district lost time on account of no orders and there is no market for the 1/2 in. minus a large part of the year. There is a pile of at least 75,000 tons of 1/2 in. minus stored at the mine.

There being no gas, little water, and a uniform seam with a working height of 6 to 7½ feet, mining conditions may be said to be excellent. There is no dead work.

Only one loading machine is served by gathering locomotive. Cutting, drilling, and shooting are done on the afternoon shift, - loading, hauling, and hoisting on the day shift only. The men spend 8 hours at the face, 6 days a week. Overtime is paid for more than 8 hours per day. All work is on a day basis except cutting, drilling, shooting, and pit-car loading.

The crew on the 460 loading machine was, - one machine operator, one motorman, one trip rider, one timberman, and two track layers. On the 260 loading machine there were, - one machine operator, two car pushers, one driver, and one track and timberman. It was stated that the 460 machine loads 110 - 2½ cars (275 tons) while the crews with horse haulage only get 188 tons.

The average production of men on pit car loaders is 17.5 tons, but the good men load 25 tons per man, and two good men load out a 50-ton place in a shift.

General

There are no pickers on the tippie or in the cars. The tippie has five tracks and the screened coal is loaded into box cars. This requires a box-car loader on each of these tracks

and an operator of the loader. When a box-car is being changed the tippie must stop.

The total force of underground men is now 58. Undoubtedly, better production per man day could be secured with good mine cars and good mainline haulage.

Assuming that a year-round market could be assured for all sizes of coal produced at this mine, and that seam conditions will continue as favorable as they were in the sections visited, this mine could be modernized and mechanized to produce coal at substantially less cost. It might be possible to drive entries only in the summertime and move the face equipment into developed room sections during the season when larger tonnage is required. If such a programme is warranted, it probably would pay to install much larger mine cars and to put in a slope with a belt conveyor instead of the present vertical shaft.

Stripping Pit

The stripping operation is in 4.5 ft. coal with the removal of 19 feet of overburden. The loading of the coal is done under contract, but the hauling to a separate four-track tippie is done on company account. There are ten trucks hauling 4.5 to 5 tons for a distance of $1\frac{1}{2}$ miles, a total of 1,000 tons per day. Of this total from 400 to 450 tons of $1\frac{1}{2}$ by 6 in. coal is hauled by rail to the briquette plant of the Dominion Briquette and Chemical Company.

ALBERTAReport of InspectionsCascade Area

In the Cascade Area there are at least twelve coal seams within a section of 1100 feet of Lower Cretaceous strata. Several of these seams are quite thin and are useful only as markers. (Report No. 34, Research Council of Alberta).

The coal is classed as Low Volatile Bituminous.

Coal Seams

At Canmore there are eight important coal seams in the area and at this time there is production from three seams.

These are as follows:

Morris Seam	8 ft.
Stewart Seam	4 - 8 ft.
No. 4 Seam	10 - 11 ft.

The major portion of the production of the chief mine of the area is coming from the No. 4 Seam with an average thickness of 10 ft. 6 inches.

The coal measures have an average dip of 15° but locally dip as much as 30° . There are occasional faults.

The roof is generally good and the floor hard.

Canmore Mines Limited

This company is mining in several seams and finishing several old mines. The principal production at this time is coming from the No. 4 Seam. The coal is high-grade bituminous with only several small streaks of impurities.

The mine is reported to be very gassy. The fan is delivering 140,000 c.f.m. at 2.1 w.g. Due to the severe weather in winter, it is necessary to heat the ingoing air by passing it over tubes heated by a coal-fired furnace. If this were not done, there would be considerable ice in winter along the travelling roads near the outcrop.

Due to heavy storms, much snow, and considerable water in small streams crossing the outcrops of the several seams, many precautions have been taken to keep out surface water, such as by building flumes, etc., across the outcrops. Considerable

water must be pumped from the mine seasonally.

A switching railroad takes coal from several mine openings and there is considerable outside haulage. At the present time, coal is hauled over two miles by compressed-air locomotives from the pit mouth over a 28.5 in. gauge track. The mine cars hold 1.5 tons when loaded by conveyors and about 2 tons when loaded by hand.

Mining Practice

The roof is generally good and the floor is hard. There is little sulphur in the coal and the undercutting is easy.

The standard practice is to drive rooms either up the full pitch or on the strike, but some work has been done on modified or semi-longwall. In hand loading the practice is to turn 16-ft. rooms on the strike. Two men work in a place, using airpicks to mine an advance opening of $2\frac{1}{2}$ by 4 by 5 feet. They work on a bench and carry this bench about 8 feet ahead, shovelling into the mine car from the bench. The bench is then shot and the track is advanced. Under the contract, the men push the cars and are paid extra when the distance exceeds 200 feet. When the room has been driven to the full depth, a cross-cut is driven up the rise through to the next room and the pillar is mined retreating.

When the rooms are turned up the pitch, the practice is to lay a shaking conveyor up the centre line of the room. A swivel is used near the face so that a considerable portion of the coal may slide onto the pan line without shovelling. The room pillars are mined on the retreat.

Mechanization

The first shaking conveyors were installed in 1940 in No. 4 Seam in an area considered suitable for the use of the equipment. The first work was on modified longwall with a face 180 feet long which was undercut, shot, and then hand loaded on the conveyor. This was discontinued as the output per man shift was no greater than by pick mining and hand loading in the standard manner.

In 1941 and 1942 shortwall cutting machines and shaking conveyors with duckbills were purchased and installed. This equipment was installed in places about 25 to 30 feet wide driven up the pitch. Air-driven shortwalls undercut 8 feet and air-powered hand-held rotary drills drill about eight holes. The crew of three face men and one man at the loading head drives the room up and then brings back the right-hand pillar by slabbing, without undercutting the slabs. It was stated that about three lifts are taken off the pillar to remove the entire 25-ft. of pillar. It requires about 30 days to drive up a 300-ft. room, working one shift per day, and about as long to mine the pillar. The conveyor line is laid up the centre of the room on the advance and is thrown over to the right from a swivel, set back some distance, so that much of the coal in the slabs will fall into the pan line. It was stated that only about 10 per cent of the coal is shovelled into the pans.

Posts are set on about 5-ft. centres with substantial cap-pieces spiked to the top of the post before the posts are set. No posts are recovered. About every 30 feet a breaker-row is set to prevent the room from caving. No falls are made and it was stated that very little coal is lost in pillars. The estimate of recovery for the mine is 85 per cent.

One shot firer has charge of two adjacent conveyor units. A cut 7 by 10.5 feet by 25 feet produces about 75 tons of coal. The crew averages better than 22 tons per shift.

The results secured have been the more rapid development and extraction of the coal from the places opened, and an increase in tons per man day which has ranged from 10 to 35 per cent. Against the savings in labor cost must be charged the cost of maintenance and replacement of equipment, the cost of explosives, and the cost of power.

During the experimental period three belt conveyors also were purchased, the objective being the concentration of work at a single loading point. Owing to the steep pitch, these

conveyors were not successful and they are not in use.

There are five complete duckbill units, two are used in rooms on the day shift, two on the afternoon shift, and one in driving a rock slope up grade. It has been found that duckbills cannot be used satisfactorily where the pitch exceeds 22° as the grip-blocks will not hold.

Production

In the year ended July 31, 1944, the production was 352,809 tons and of this amount 97,208 tons were briquetted. The total shifts worked were 81,665, which is a production of 4.32 tons per man shift.

A L B E R T A

REPORT OF INSPECTIONS

Coalspur Area

The coal seams of the Coalspur Area are described in the "Geology of the Area between the Athabasca and Embarras Rivers", Research Council of Alberta Report No. 15. The coal produced is classed as High Volatile C Bituminous (Report No. 34, Research Council of Alberta).

Coal Seams

There are three principal seams in the Belly River formation of the Upper Cretaceous. The Val d'Or Seam lies about 200 feet above the Silkstone and is generally split by a heavy parting of sediments and coal bands. The upper part of the seam is about 6 feet thick while the lower part is about 10 feet thick.

The Silkstone Seam is as much as 14 feet thick. The Mynheer Seam is 190 to 200 feet below the Silkstone. In certain of the underground mines this seam is about 12 feet thick. It may be split by partings and due to repetition of the beds, by folding, it may be over 25 feet thick.

The coal beds are folded and faulted in portions of the field and in places the coal has been thickened by deformation of the beds. The dip of the measures ranges generally from

20° to 35°. The thinnest seam now being worked underground is 8 feet 6 inches, while in some of the stripping operations the coal is from 50 to 120 feet thick.

Mining Operations

There are four operating properties in this area with a production of about 500,000 tons per year. The probability is that this tonnage will increase if the tonnage can be marketed.

The operating properties are as follows:

McLeod River Hard Coal Company, Limited, Mercoal
Foothills Collieries, Limited, Foothills
Sterling Collieries Company, Limited, Coal Valley
Coal Valley Mining Company, Limited, Coal Valley
Lakeside Coals, Limited, Robb

FOOTHILLS COLLIERIES' LIMITED

This is the only important underground mine in the Coal Valley district and it is working in the Val d'Or Seam (referred to also as the No. 2 Seam). This seam usually has a bentonite parting of 6 to 8 inches. Above the parting there is 5 feet 6 inches of coal, of which one foot is left as roof. There is about 3 feet 3 inches below the parting. The dip is 20° to 22°. The slope is in the seam and now handles about 450 tons per day with hoisting on the day shift only.

Most of the production is now coming from the 5th level, the workings extending 4,000 feet to the left of the slope and about 2,500 feet to the right. The 6th level has been opened to the right, levels being 350 feet apart on the pitch of the seam.

Haulage

The track gauge is 30 inches and the wood cars hold about 2.3 tons. Haulage on the levels is by horse.

Mining Equipment and Practice

Cutting is done in the bentonite using radialax cutters. In entries two men cut 16 feet wide and 8 feet deep and load out the cuttings. In rooms 45 feet wide, generally three setups are required to cut the place. The cutters can cut only two-thirds

of a room in a shift. A room-cut will produce about 90 tons of coal and with four loaders in a place, loading 15 tons per man and doing the incidental work, a balance is kept between cutting and loading.

The cuttings are thrown to the right and left sides of the room and between the slides. The latter, about 3 feet wide, are built of heavy planks on which sheet iron is fastened. The coal in rooms is generally dry and slides well. The coal is drilled by hand using the Cyclone (speedy) drill. In a 45-ft. room about five holes are drilled above the kerf and five below. The coal is very blocky and some additional shooting is necessary at times. Timbers are set on 4-ft. centers.

In the new work on the 6th level (following experimental work on the 5th Left), rooms will be turned on 60-ft. centers and pillars will not be drawn. On the upper levels, pillars were drawn but due to the water, the difficulty of holding the roof, etc., it was decided to drive entries to the boundary (instead of taking pillars on advancing work) and retreat without taking the pillars. By this system a substantial saving will probably be made in entry timbering and the repair to roads.

COAL VALLEY MINING COMPANY, LIMITED

This company is operating a stripping on the Mynheer seam which normally is about 16 feet thick. However, in this area it is buckled and folded so that the total thickness of coal at the surface is 150 to 450 feet, with a workable depth of as much as 300 feet. In order to expose the full width of the bed at a depth of 300 feet, it will be necessary to strip back the overburden a considerable width as the material will creep and slide on the walls. In some places the footwall becomes the hanging wall and it will not be economical to mine the coal by open pit.

Several pits have been opened to date. No. 1 and No. 2 are not in operation and have been backfilled in part. No. 3 adjoins the present operations of the Sterling Company. No. 4

will be the source of most of the production when operations are resumed. No. 5 has not produced any coal but stripping of overburden will be pushed so that it may be available when No. 4 declines.

It was stated that drilling had proved the deposit for several miles and that 30 to 40 years life is assured for the new cleaning plant, which is to be completed in a short time.

This plant, designed by G. Vissac, will have a capacity of 165 tons per hour, cleaning the 1/4 by 6 in. coal. Coal will be crushed to 6 inches; there will be no pickers. The 1/4 in. minus will not be cleaned. There will be two Vissac jigs, one taking the 6 by 1½ in. and the other 1½ by 1/4 in. It is estimated that there is about 300,000 tons of 1/4 in. minus and refuse from the old cleaning plant in a pile near the site of the cleaning plant and this may be run through the new plant if a market can be found for the small coal. The product from the jigs will be combined and passed through a Vissac dryer. The refuse will be trucked and the sludge will be pumped to the nearby strip pit.

About \$125,000 is being spent on a power plant. Four boilers of 200 HP each will be installed and one 500 KVA generator, as well as one small emergency unit. It is reported that the total investment in the new plant will be in excess of \$300,000.

STERLING COLLIERIES COMPANY, LIMITED

This plant is located at S₊erco and is a stripping operation on the Mynneer seam. The output from one 2½ cubic yard shovel is about 800 tons in 8 hours. The present pit has a reserve of only 3 to 4 years.

The removal of waste is contracted. The coal is hauled from the pits to the cleaning plant by small steam locomotives in trips of five dump-cars holding about 8 cu. yds.

The practice is to shoot the coal in lifts of about

30 feet, drilling vertical holes 18 feet apart and 20 feet from the face. Horizontal holes are staggered between the vertical holes and are 20 feet deep. This breaks the coal back to 25 feet from the face.

A cleaning plant is necessary as in places there is considerable clay and rock included in the mass of coal. It is not practical to handle this separately in the mining operation. In the cleaning plant, the 1/4 by 1-3/4 in. is dry-cleaned, the 1/4 in. minus being largely unmarketable at the present time.

LAKESIDE COALS, LIMITED

A new tippie has been built and the power plant repaired.

A slope is being sunk in a 4-ft. seam, and a crosscut will be driven through the measures to open into the old seam (8 feet 6 inches) at a point below the fire area.

MCLEOD RIVER HARD COAL COMPANY, LIMITED

This company is a subsidiary of the Canadian Collieries (Dunsmuir) Limited, having been acquired in 1941. Since that date the output has been increased from 300 tons to over 1200 tons.

This mine is a slope, 36°, on the Val d'Or Seam, which averages 8 feet 6 inches. There are three parallel slopes, one for hoisting, one for pipes, etc., and one for a travelling way. The slope is 1800 feet long to the 4th level which is at vertical depth of 619 feet.

There are two fans, each handling 40,000 c.f.m., w.g. 1/4 to 1/2 in. There is little gas in the mine.

Haulage

The track is 36 inches and the composite cars hold 2 tons. Three cars are hoisted by the single-drum, direct-acting steam hoist. It was stated this hoist can handle 400 cars per shift.

Mining Equipment and Practice

There is one battery locomotive on the third level; the other haulage is by horses.

The mining is being carried on on the 3rd and 4th levels. Levels are 400 feet apart on the pitch of the seam. Entries are 15 feet wide, with one foot of coal left as roof. Cutting is done in the clay parting and the drilling by jack-hammers.

One air-driven track loader is used on the 4th level to drive a 50-ft. entry. The 10-ft. counter entry (50 feet above the haulage level) is advanced by hand shovelling onto a shaking conveyor. By the use of the track loader, it has been possible to advance the entry 40 feet further in two weeks than was possible by hand loading.

Rooms are turned, up the pitch, 40 ft. wide on 60 ft. centers with crosscuts every 50 ft. Chutes, 6-ft. wide, on the center line of the room, are floored with 3 by 8 feet sheet-iron strips nailed directly to the floor, unless it is necessary to lay a few planks on the floor where it is uneven. Posts are set on about 6-ft. centers, with lagging about 3.5 feet high to provide sides for the chutes and at the same time keep the waste in the rooms from mixing with the coal.

The main slide is carried well up to the face of the room, and the loader builds (and moved forward) side chutes, or slides, to eliminate double shovelling. These side-slides direct the coal into the main slide.

About ten shots are necessary to break the 9-ft. advance in a room, but due to impurities in the top of the bottom bench, the loader is required to drill holes to the full depth of the cut about 12 inches below the kerf. He shoots these impurities lightly and gobs this material before shooting the coal.

Rooms are turned on the advance and no pillars are drawn. Timber is now packed into the rooms, but air hoists are used when air is available.

Two men cannot cut a full place in a shift. Two loaders work in one place and usually clean up a 90-ton fall of coal in three shifts. Alternate rooms are worked on day and night shifts. The cutters must keep the men in coal and schedule their work so that this is possible.

Tipple

The lump coal is quite large and two men were using airpicks to split the extremely large lumps. There are seven pickers each shift on the tipple.

With a total of 300 men, there is a production of 1200 tons.

Improvements

The McLeod River coal will stand storage and, in order to provide year-round operation and employment for the men, storage facilities will be provided to take care of the fluctuating seasonal demands for domestic coal on the Pacific Coast. Assuming that the market conditions warrant it, it is the thought of the management to increase the capacity of the mine and preparation facilities so that approximately 2000 tons per day may be mined.

Among the improvements made recently have been the installation of a larger conveying belt for screenings from the shaking screen to the trommel, a larger trommel, and new storage bunkers. Two 530 HP boilers with chain-grate stokers and other auxiliary equipment have been transferred from Nanaimo. A new bunkhouse and a community water system have been installed. The main slope is being extended.

A L B E R T A REPORT OF INSPECTIONS CROW'S NEST PASS AREA

The productive coal measures in this Alberta field occur in the Kootenay formation of the Lower Cretaceous. The formation varies in thickness from 360 to 800 feet and contains five coal seams. Of this number three seams are of importance and only two are being mined at any one place. The coal is ranked

as Medium Volatile Bituminous, but some High Volatile A Bituminous is also mined. (Report No. 34, Research Council of Alberta).

Coal Seams

The seams are numbered from the top to the bottom. No. 1 Seam is the principal seam in five mines, ranging in thickness from 0 to 25 feet with an average thickness of 12 feet in four of these five mines. No. 2 Seam was the principal seam in five mines and in two large mines it ranged in thickness from 4 to 17 feet with an average of $14\frac{1}{2}$ feet in one of these and $9\frac{1}{2}$ feet in the other.

The inclination of the seams varies in different parts of the field and in different parts of the same mine. In one colliery the dip of beds ranges from 10° to 48° . In another the pitch is growing less with depth; on the upper levels the pitch is 20° to 45° , while on the lower levels the pitch will be about 6° .

In certain portions of the field above the coal there is a cap rock which is difficult to support. In part of the field there is shale floor which has a tendency to heave.

Due to the difficulty of maintaining entries in No. 2 Seam, one company has driven the permanent entries in the sandstone floorwall.

Mining Methods

Practically all of the production is coming from room and pillar mining but there is a small tonnage coming from experiments with modified longwall.

Where the seams are steep (over 20°) it is the general practice to drive rooms up the pitch and work the coal to the haulage entry over sheet-iron slides. A large percentage of the coal is recovered in the mining of pillars on retreat.

In some instances airpicks are used in the high coal, with the men working on the bench.

In one mine where the dip averages 30° , the rooms are

turned up the full pitch. Due to the softness of the coal no drilling and shooting or cutting of the coal is necessary. The coal is worked by hand and all coal slides over sheet-iron chutes to the haulage entry below. The rooms are driven on 85-ft. centers and pillars are drawn systematically.

In another mine, where the dip is more than 30° , the rooms are driven up the pitch at an angle of 30° . Airpicks are used to advance 13-ft. rooms on 70-ft. centers. The pillars are mined by angling slabs worked to definite breaklines.

As the seams become flatter in certain parts of the field, the problem of moving the coal to the haulage road becomes more difficult and conveyors have been used.

As previously noted, much of the coal is mined by airpicks. Chair cutters are used only in a few instances in entry driving and in the modified longwall. Some radialax machines have been used largely for experimental purposes.

Mechanization

A large amount of experimental work has been carried on by several of the companies in order to expedite development and to increase tonnage during the period of labour shortage. The equipment used has included various types of air-driven devices including track-loaders, pit car-loaders, conveyors and scrapers.

While the tonnage loaded mechanically for the field as a whole is not large, considerable progress appears probable in the tonnage from entry driving.

For entry driving in rock the air-driven track loaders have proven very satisfactory and in several mines this type of loader is now being used to load coal in entries.

HILCREST MONARK COLLIERIES, LIMITED

In the portion of the Crowsnest field in which this company operates there are three synclines or basins ranging in length from two to four miles and from one to two miles in width. These basins extend to a depth of 2000 feet. Under such conditions

there are rapid changes in the pitch of the seams and in the thickness of overburden. A larger percentage of flat work is anticipated with depth.

There are three mines in operation, one in each of the above mentioned basins[#]. The No. 1 Mine is the principal producer and the other two are in the development stage.

No. 1 Mine

No. 1 Mine has been producing for more than 20 years from the No. 1 Seam which varies in thickness from 7 to 16 feet, with the pitch ranging from 5° to 60°.

The general plan of mining is the room and pillar system with rooms 13 feet wide on 70-ft. centers. A given area is divided into panels, with the entries driven on the strike about 500 feet apart.

The plan of mining in the panels depends upon the pitch. In any event, the men are equipped with airpicks which are light-weight units weighing 18-3/4 lbs. In working places where there is no shooting, the coal is mined and dug with these airpicks. Where coal is shot, the mining is done with these picks and the face drilled with a reciprocating drill. After the place has been shot, the face is trimmed with the airpick.

In entry driving, experimental work has been carried on with small air driven track loading machines which load directly into the mine car. It is reported that a substantial increase (50 per cent) in the rate of driving entries has been possible by the use of these small loaders.

It is the practice to draw room pillars throughout the mine and it has been found desirable to commence drawing pillars as soon as the room is completed. When rooms and pillars are allowed to stand, there is a substantial increase in cost due to repairing and retimbering old working places.

[#] D. B. Young, "General Mining Operations of Hillcrest Mohawk Collieries, Limited", Trans. Can. Inst. Min. & Met., 1944.

Under the present system 70 per cent of the tonnage is coming from pillar work.

In rooms where cap rock occurs, booms or timber sets are required every 5 feet, and where no cap rock occurs ordinary props and cap-pieces are used.

In drawing pillars where there is sufficient pitch, the angle-cut system is generally used. Panels of ten rooms are worked at a time. After two blocks in each room have been drawn, the caving of the worked-out area is started. When working on the full pitch, batteries are used at every block in the room to protect the miners from caving gob and to keep the coal clean.

Where the pitch is over 30° , the angle system is used, working always to a uniform pitch of 30° . Then batteries are used in both the angle and the back angles adjacent to the block being drawn.

In both the advancing rooms and in the pillar work when coal is dug by the miners with airpicks, it runs by gravity from the coal face down a chute lined with 22 gauge sheet iron 30 inches wide to the entry where it is loaded into mine cars.

Where the pitch is less than 23° , panels 450 by 500 feet are projected above the main entry. A room and a parallel airway are driven up the center of this panel and cross-pitch rooms are turned right and left as the center room advances. To convey the coal down to the haulage entry, a shaking conveyor is installed in the center room, and tracks or shaking conveyors with duckbills are installed in the cross-pitch rooms.

When tracks are laid in these rooms, it is the practice to drive the rooms 10 feet wide on 40-ft. centers for a distance of 200 feet. The miner loads the coal into a $1\frac{1}{2}$ -ton buggy which he pushes to the center room and dumps into the shaking conveyor. After the cross-pitch rooms have been advanced to their full depth, the 30-ft. pillars are mined. When there is sufficient roof weight the pillars start squeezing and the pillar coal can be mined easily. When the mine is operating full time, a complete

panel may be extracted in about six months with very complete recovery.

When shaking conveyors and duckbills are used in cross-pitch rooms, the rooms are generally 20 feet wide and are undercut with shortwall machines. In such cases the room centers are reduced to 28 feet and the 8-ft. pillar is undercut on the retreat. Experimental work has proved that with good roof conditions, this system can be used safely and efficiently.

On development the production is 10.5 tons per man shift, while on pillars the production is 12 to 15 tons per man shift.

It is not the practice to recover mine timber on the retreat work.

No. 5 Mine

This mine is being developed where the No. 3 Seam is 10 feet thick. At a distance of 80 feet below this is the No. 4 Seam which is 7 feet thick. The pitch varies from 50° to 60°.

In the entry driving, a small air-driven track loading machine is used and the rate of advance is 15 feet with three-shift operation. The supply of compressed air is one of the controlling factors in the development, and it has been found most economical to use airpicks, air drills, and the air-driven track loader, in comparison with chair cutting machines and radialax machines.

There is no longwall mining at present in this mine, but modified longwall is under consideration for the 4-ft. seam in the hanging wall.

For the property as a whole, the output per man shift in 1944 was 3.64 tons, as compared with 4.24 tons in 1942.

Haulage

An elaborate system of rope-haulage has been developed on these properties. The essential features have been described

in technical papers.[#]

Horse haulage is used for gathering to some extent where the hauls do not exceed 2000 feet and the grades are in favor of the loaded trip.

Mechanization

In the statement filed by this company, the following general data on mechanization were presented:

A. Eighty-five per cent of the coal mined is produced by the use of explosives. All holes for explosives are drilled by jackhammers and all coal is dug with airpicks at the face.

B. There are five sets of conveyors to replace the manual handling of coal from the face.

C. One gangway is being driven by airpicks and the coal or rock is loaded by an air-driven track loading machine.

D. There is one duckbill with shaking conveyor and one shortwall undercutter.

Coal Reserves

The coal reserves of this company at its present rate of production appear to be ample, considering

1. Known reserves in the present working areas and development.
2. Additional reserves based on knowledge of the continuity of the coal seams.
3. Estimated additional reserves, assuming continuity of seams on structural evidence only.
4. An area of 10,000 acres of unproven coal lands within reach of present operating sites and not requiring further railroad extension.

Preparation

The mine cars are dumped in a rotary dump and the coal is screened on a Marcus screen which has a capacity of 225 tons per hour, the 1-1/4 in. coal passing through the screen. The plus 1-1/4 in., amounting to 120 tons per hour, is then crushed to a maximum size of 4-1/2 inches.

[#] D. B. Young, "Conversion of Horse Haulage to Main-and-Tail Rope Haulage", Trans. Can. Inst. Min. & Met., 1944, Vol. XLII, pp. 285-290.

On leaving the breaker the coal passes over a vibratory screen which removes the fines. The 1-1/4 by 4-1/2 in. coal is then taken to a Vissac jig, from which the clean coal passes to a 3 by 4 ft. dewatering screen and then to a 5 by 12 ft. vibrating screen, the bottom deck of which is a further dewatering screen, with 1-1/2 millimeter clear spacing. By means of flight conveyors, the clean coal is then taken to storage bins or mixed with fine sizes or loaded directly into cars.

The minus 1-1/4 in. coal, screened through to the under deck of the Marcus screen, passes to a 5 by 12 foot triple-deck vibrating screen, where it is screened into stove coal (3/4 by 1-1/4 in.), stoker coal (1/4 by 3/4 in.) and slack (minus 1/4 in.). These three sizes of coal are fed uniformly on four air-tables, one for stove, one for stoker, and two for slack. Middlings are returned to the tables for recleaning.

In order to recover the saleable coal in the refuse from the tables, this refuse is collected and passed into a second Vissac jig. Tonnage recovered from this jig averages from 60 to 80 tons per eight hours.

All coal sold for domestic purposes is treated with a solution of calcium chloride to dust-proof it.

WEST CANADIAN COLLIERIES COMPANY, LIMITED

This company is operating three mines in the Crowsnest Pass district, namely, Greenhill, Bellevue, and Adanac.

GREENHILL MINE

This mine is opened on No. 1 and No. 2 Seams, the latter seam being about 60 feet under the No. 1 Seam. They vary in thickness from 9 to 14 feet. One other seam has been mined to a limited extent. In general, there is a good conglomerate roof over No. 1 Seam, but in places there is heavy clod.

The dip varies and ranges from 20° to 40°. The seams become flatter in parts of the field. Gangways have been driven in the seam from the outcrop on the strike of the seam. The

haulage on the gangway is main-and-tail rope haulage; the gathering and loading of cars is by means of endless rope haulage. A slope extends below the main level and rope haulage is used on this slope.

Airpicks are used in mining the coal, a total of 126 picks of various makes being in service. While the cost of mining is greater than with explosives and hand mining, it is recognized that this practice is safer under existing conditions. Cardox is being used in narrow work and explosives in the pillars.

Mining Practice

The standard practice in steep pitches is to turn 12-ft. rooms at an angle up the dip, giving approximately 30° dip to these rooms. All work is done with airpicks working off the bench. The coal slides to chutes discharging on the main haulage levels. Where necessary these chutes are lined with steel to facilitate sliding. Pillars are drawn to within about 250 feet of the main haulage.

On the main haulage the empty cars are spotted under the chutes by endless rope haulage. Two men handle the loading of trips, one manipulating the gate of the chute and the lifting "lip" at the car, while the other operates the friction grip so that the cars are moved forward by the endless rope during the loading and then moved away from the loading chute. The endless rope takes the cars to the main-and-tail rope where trips of forty or more cars are assembled; they are then hauled to the pit mouth.

Where the seam is not steep enough for the coal to run, shaking conveyors or scrapers may be used.

With scrapers, a system of modified longwall is being used locally. One of the plans being followed is to drive "splits" 14 feet wide on 90-ft. centers and then slab one wall of the split until the 76-ft. block has been reduced to 20 ft. The walls are undercut at times with longwall cutters. When the

coal is 10 feet thick and the lift is 6 feet, a 60-ft. wall will produce 144 tons. Walls longer than 60 feet are under discussion. The hoists operating the scrapers on these walls and the chutes are mounted on slides so that they may be retreated without much labor.

For the purpose of transferring coal, two or three scrapers may be used in tandem.

New Methods and Equipment

Considerable experimental work has been done and is being continued in order to improve the output from narrow work, from rooms and pillars, and from walls. Various types of mechanical loading devices and auxiliary equipment are being used.

A shaking conveyor with compressed-air drive is being used in conjunction with a small slusher and scraper loader. The coal is being scraped from the face to the conveyor which moves the coal to the chute. To prepare the coal, the coal is undercut with a longwall chain-cutter and shot with explosives.

In another district of this mine, three large-size duckbills are in operation with three shortwall coal cutters. While these machines have been in operation for some time and the work has been experimental, no method has yet been worked out that is entirely satisfactory for the conditions. The output per man has averaged about 15 tons but with the larger investment in machinery, together with supplies and power, a much higher output per man employed is required to make the new practice profitable.

Another experiment has been the mounting of a longwall coal cutter (8 ft. bar) on a special truck so that the coal in an advancing entry in the steeply pitching seam may be cut on the pitch. The truck runs on the floor and the machine may be parked alongside the track after the cut has been finished.

A shaking conveyor has been installed in a gangway in which the coal is cut with a Siskol coal cutter and the coal is shot with Cardox. Some of the coal falls on the conveyor pans

and the remainder is shovelled by hand on the conveyor.

Another innovation which is operating successfully, is the mounting of a standard shaking conveyor drive on four car wheels and clamping this truck to the track which is laid on heavy ties; heavy fish plates are used. As there are four fastenings, with twin-buckles, holding the truck rigidly to the rails, no jacks to the roof or sidewalls are required.

The drive is advanced every 60 feet (two rail-lengths) thus making it possible for the permanent track to be laid as the entry is advanced. When the conveyor drive is moved there is a delay of about two hours in face operations.

An air-driven track loading machine is loading coal quite successfully in the double-track entries.

In 1945 about 10 per cent of the tonnage of this mine was loaded mechanically.

GREENHILL CLEANING PLANT

The feed of the plant is plus 1/2 inch with the maximum size being about 8 inch. The system used is float and sink with finely ground limestone (50 per cent through 200 mesh) in water as a heavy liquid, to provide a bath in which coal can be separated from refuse. By regulating the specific gravity of the bath to float only coal, and to allow pure refuse and middling material to sink, a very efficient separation is made.

This process was invented by Mr. J. A. Brusset and was developed at this property.

The plant is operating now at a specific gravity of 1.58. At this gravity the plus or minus .10 sp. gr. accumulation is approximately 15 per cent. The ash in the washed coal has been maintained at a fairly constant figure over the past three years' operation.

The raw feed is delivered to the separating vessel from a belt conveyor. This vessel is a rectangular tank with vertical sides and the ends inclined to serve as conveyor troughs. A flight conveyor, carried in the tank, removes the sink material

on the bottom run, discharging it to a crusher at the sink end of the washer and thence to middlings washer. The top run of the conveyor skims off the float material and discharges it at the opposite end of the washer from the sink end. Fine float material, which is not picked up by the flights, flows over a weir behind the conveyor at the float end. The float is discharged directly on to a vibrator type medium drainage screen. Make-up medium is added near the point where the refuse run of the conveyor leaves the bath. This establishes a flow in the tank towards the float end, parallel with the travel of the float run of the conveyor.

The middlings washer is of the same type as the main washer. There are medium drainage and rinsing screens. New two-deck "Lo-Head" screens are on order to improve this section of the plant. Recommendation has been made that two 6 ft. by 10 ft. vibrators be set in tandem to do the entire job of sizing, draining and rinsing 150 TPH of washed coal. The application of vibrating screens to either sink or float products is the same insofar as medium recovery is concerned.

The first section of the screens, the medium drainage section, drains off the bulk of the medium coming out with the product. This medium is not diluted and is returned to the medium storage tanks for re-use. On the next section of the vibrating screen, the rinsing section, the medium particles adhering to the product (clean coal or refuse, as the case may be) are removed by sprays. On the clean coal screen the primary spray is a dilute medium (1.125 sp. gr.) and the secondary, or final spray, is clear make-up water. Approximately 60 GPM of fresh water is required at this point.

Medium is handled at present from two mixing tanks. These tanks have a combined capacity which permits draining the washers into them with a working reserve. They are cylindrical, flat bottom tanks with agitators suspended in them by means of vertical rotating shafts, and arranged so that they may be raised

or lowered in the tank. These agitators are kept running continuously in order to keep all of the medium in suspension. Medium from the drainage screens, underflow from the thickener and the cyclones, and new limestone to maintain the specific gravity, are all discharged into these tanks. Medium for mixing tanks is pumped back to separating vessels.

Diluted medium from the rinsing section of the drainage screens is collected in a pump sump and pumped to the wet cyclones. Feed to the five cyclones at present is about 460 GPM of pulp at 1.17 sp. gr. The overflow is about 315 GPM at 1.125 sp. gr. The underflow is about 145 GPM at 1.30 sp. gr. The underflow of all five cyclones is returned to the mixing tank. The overflow from three cyclones is used as a primary spray on the rinsing section of the drainage screens. The overflow from the other two cyclones goes to a sludge screen.

The sludge vibrating screen removes part of the coal fines from the medium to be cleaned. It is surfaced with a perforated screen deck having 1/16 in. diameter holes. The through product goes to the flotation cells. There are two flotation cells in use now and two more are on hand. It is presumed that they will be required to clean the medium when the new drainage screens are installed and medium recovery is improved. At the present time, the floath from the flotation cells is discharged into the thickener overflow and wasted, but it is planned to pass this over a vibrating screen and place the over product in the fine coal. The effluent discharges into the thickener which is used to concentrate the cleaned medium.

BELLEVUE MINE

This mine, opened in 1903, has operated in three seams; the present work being in No. 1 Seam which varies in thickness from 9 to 14 feet.

Development

The seams are reached by means of a rock tunnel driven

across the measures. Most of the coal being worked now is below the drainage level and must be hoisted up slopes and hauled from the top of them to the tippie.

Haulage

Main slope haulage is by means of an electrically operated hoist placed on the surface. An air-driven hoise is used to raise the coal from No. 9 slope to No. 8 slope. Direct rope haulage is used on the slope.

On gangways the haulage is by compressed-air locomotives which total fifteen. The maximum travel from the inside working place to the slope is approximately 10,000 feet. The coal is hauled from the main delivery points to the slopes by these locomotives and, also, from the top of the slope to the tippie.

Mining Conditions and Methods

Proceeding from the outcrop on the dip, the pitch of the seam has decreased. On the upper levels the dip was from 20° to 45° , while on the lower levels the dip is as low as 6° . On the lower pitches the coal will not run by gravity and other methods of handling it on the gangways must be devised.

Airpicks are used generally in breaking down the coal. A total of 80 airpicks are in daily service, and the use of explosives has very largely been discontinued. Cardox is used in some of the narrow work. When Cardox is used, "speed"drills are used as larger holes are required for Cardox than when ordinary explosives are used.

When the pitch is less than 18° , it is necessary to use a different method for bringing the coal to the haulageway. At Bellevue a 26-in. belt conveyor, 1200 feet long, is used to bring the coal down the pitch. The coal may be hand-mined, loaded into dump cars, hand trammed and delivered to the belt, or the miners may load on to the shaking conveyor which discharges on the belt conveyor. This latter practice has been used at

Bellevue Mine. It was stated that with fifteen shaking conveyors, two lateral belts, and one supplementary belt the use of the conveyor system as a whole has not proved profitable.

In order to facilitate the handling of supplies in raises and for other purposes fifteen air hoists have been installed.

In 1945 nearly 30 per cent of the tonnage of this mine was loaded mechanically.

This mine has operated continuously since 1903 and in 1944 produced 380,000 tons with an average of 366 men employed. Of this total 253 were underground, 74 above ground, and 28 on supervision, etc.

ADLINC MINE

This new mine is opened in the No. 1 Seam south of Bellevue. The coal produced is hauled by truck to the Bellevue Mine tippie and preparation plant, a distance of about 6 miles.

Two openings, about one mile apart, are driven on the strike of the seam. The seam in the lower mine is 10 feet thick and pitches from 10° to 18°, while in the upper mine the seam varies in thickness from 10 to 25 feet and pitches from 65° to 85°.

Compressed-air and electricity are developed for these operations by Diesel-driven units.

Ten airpicks and eight power drills have been installed. Two radialax cutters are installed and one air-driven track loader. In 1945 more than 15 per cent of the output of this mine was loaded mechanically. To get the coal down the pitch in the lower mine, a scraper is used, and a scraper is used also to get the coal from the counter gangway face, at the upper mine, to the last raise from the main gangway. Smaller hoists are used for hoisting cars and timber up the pitch. Horses are used for haulage but plans have been made to install some type of mechanical haulage.

It is planned to equip this mine with the most effective types of equipment for cutting, loading and haulage.

INTERNATIONAL COAL AND COKE COMPANY, LIMITED

This company has extensive holdings in fee and under lease. At the present rate of production, there is sufficient coal to operate many years, particularly in the No. 2 Seam. There is additional tonnage that may prove workable in the No. 4 Seam and a considerable acreage where coal probably occurs at depths in excess of the depths at which coal is now being mined in Western Canada.

The production per man shift in 1944 was 3.53 tons, as compared with a maximum of 3.93 tons in 1940.

The production of this mine is largely from the No. 2 Seam which averages about 14 feet and is of good quality. The dip averages 30° in the areas worked. The floor is about 18 inches of shale and this heaves when any weight comes on the coal.

Below the No. 2 Seam is No. 4 Seam at varying intervals up to 120 ft. No. 4 Seam is about 5 feet thick and has fair roof. Very little work is being done in No. 4 Seam at this time. Both seams are very gassy.

Due to the difficulty of maintaining entries in No. 2 Seam, the company drove the main slope in the footwall about 90 feet from the No. 2 Seam and the main entries are also driven in the sandstone footwall. The main slope reaches the D level at an elevation of 3450 feet at a distance of 2000 feet from the portal, which is at an elevation of 4384.5 feet. At the time of the inspection, work was being done in rock, driving from the seam on the E level (3162 feet). A raise will be put up to connect with the Main Slope, thus extending the slope to the E level.

The standard rock drift is 10 by 10 feet and stands without timbering. Two air-driven shovels are used for loading rock. The drilling and shooting is done on one shift and the loading of rock on the following shift. The crew consists of

two drillers, a part-time shot firer, one loading machine operator, and a driver.

The practice of driving in rock was adopted after considerable experience in trying to hold open the gangways in the seam. It was found very expensive to maintain gangways even when steel supports were used. At the present depths, the openings in sandstone stand without timbering. Where it is necessary to drive any distance in coal, the drift must be timbered and then retimbered at least once.

Mining Methods

Rooms are turned up the full pitch and all the broken coal slides over sheet iron chutes to the haulage way. The plates of 25 by 6 feet sheet are laid by the miner under contract. The rooms are driven 8 feet high by 10 feet wide on 90-ft. centers. Two men with hand picks advance the place and as the coal is soft they can advance 15 to 16 feet per shift. Usually a chute is built in alternate openings which makes an interval of 180 feet. The rooms are connected about every 100 feet for ventilation. The rooms in which the chutes are built are forked at a distance of 60 feet above the chute so that the chute may receive coal from two rooms.

The rooms are driven to the upper entry or level and then pillar drawing is started on the retreat, both from the level above and along the strike. An orderly breakline is projected and maintained, except for local troubles.

At times the coal starts to run when a face is opened, with little or no pick work by the miner. Work in a room usually starts on the hanging wall, with a bench of about 8 feet. Posts are set on the coal left on the floor or footwall and often there is sufficient weight to push the timber into the coal on the footwall. No timber is recovered in rooms.

The posts are usually set on 5-ft. centers with a small block as a cap-piece. In order to break the roof, "breaker

rows"are set, and down the pitch, as the pillars are mined, "batteries" are built in order to hold back any falls of roof (possibly 6 feet thick) which will slide down into the working rooms and chutes unless they are stopped well up in the room.

A "battery" consists of a solid row of posts set "skin to skin" across the room a distance of 10 to 15 feet, as may be necessary. These are set nearly at right angles to the walls and a pile of coal is raked down on top of the timber for the purpose of forming a cushion and preventing the sliding rock from striking the posts directly.

At the time of the inspection, coal was being drawn from eight chutes. The locomotive pulls in a trip of 24 empty cars, spots 8 cars at each of two chutes, and takes 8 cars to the inby chute to be drawn. Two men work at each chute, one pushing the car under the chute and the other operating the gate of the chute. It was stated that it takes eight minutes to load a 24-car trip.

It is expected that 40 cars per shift will be drawn from each chute, making 80 cars, or 160 tons, per day which should be produced by eight face men. It was stated that there should be a production of 1000 tons per day in two shifts from a breakline and its accompanying development.

In operating a system or mining plan of this type systematic timbering is very important. With posts costing 3.5¢ per lineal foot, considering the contract price paid for setting posts and the number of packers required to deliver the posts to the working places, the total cost per ton appears to be high. With increasing depth this item of cost may increase.

A large double-drum hoist handles a 6-car trip up the slope. The cars hold 2.1 tons. At the present distances it requires six minutes to make a round trip on the slope, which would make the hoisting capacity about 1000 tons in an eight-hour shift. In 1944 the daily mine average was 1690 tons but a considerable part of this tonnage was not handled up the slope.

There is a substantial tipple and a cleaning plant which were not inspected.

COKE

Of a total tonnage of 425,958 in 1944, a substantial tonnage was coked, the coke production amounting to 67,999 tons. There are 104 Bee-Hive ovens, each 12 feet, inside diameter. They take a charge of six tons of coal per oven, producing four tons of coke in a burning time of 48 hours. Coke is drawn, screened, and loaded by a Coventry coke-pulling machine.

Metallurgical coke is made and no by-products are recovered.

McGILLIVRAY CREEK COAL AND COKE COMPANY, LIMITED

This operation is a slope mine in No. 2 Seam which averages 10 feet in thickness and pitches about 25°. The thickness of cover is given as 1600 feet.

In 1944 the average number of men employed was 338, of whom 249 were underground. The total production was 240,480 tons with an average output per man employed of 2.817 tons.

The estimated reserves in No. 2 Seam include over 3,000,000 tons in fee lands and over 7,000,000 tons in leased lands; while in No. 4 Seam the estimated reserves are 2,375,000 tons in fee lands and 4,500,000 tons in leased lands.

This operation was not visited.

AIR. 700 Nov
3 XVII Can
C

Calendar Book
E. Minette

(62)

ROYAL COMMISSION ON COAL

Ottawa, Ont. April, 1946.

VOLUME LXII



DRUMHELLER AREA

The producing coal fields of this seam are described by the Geological Division of the Research Council of Alberta as lying in the Edmonton coal-bearing formation.

Coal Seams

While fourteen seams are listed in the geological reports as occurring in the Edmonton formation, all of the seams from the lowest up to Seam No. 9 are exposed within a distance of twenty miles along the Red Deer Valley. However, at the present time, most of the operating mines are in the No. 1, No. 2 and No. 5 Seams. Seam No. 1 is the lowest workable seam and has a thickness of four feet to seven feet, with an average thickness of about five feet six inches. The regional dip is about twenty feet to the mile in a west-southwesterly direction.

It has been stated (Report No. 13, Research Council of Alberta, p. 41):

"The most characteristic feature of No. 1 Seam is its division into two benches by a band of bentonite varying in thickness from a fraction of an inch up to 20 inches. As a rule the bottom of this band is quite regular, but the top undulates. The band of impurities between the two benches is in some places too wide to warrant its extraction in order to work the lower bench of coal. The lower bench varies from 18 to 42 inches in thickness and in places contains a band of bone a few inches thick. The upper bench varies in thickness from five feet to 6 feet 4 inches, and in places contains one or more thin bands of bone, shale or bentonite. The roof is shale and bentonitic sandstone. At a number of places a band of bone separates the coal from the roof, and in other places a lense of coal occurs between the bone and the true roof. In a few places the roof is soft and a few inches of coal are left on the roof for support."

There is a main cleavage plane in this seam which trends 43° to 50° east. There are "nigger heads" in some areas.

The coal varies in ash and moisture and is classified by the Geological Division of the Research Council as High Volatile C Bituminous.

Seam No. 2 occurs 35 to 50 feet above Seam No. 1 and ranges in thickness from 42 to 66 inches in the Willow Creek and East Coulee sections. The interval between No. 1 and No. 5

Seams varies in different parts of the field up to 105 feet.

Seam No. 5, formerly known as the Top or Newcastle Seam, varies in thickness from 3 feet 6 inches to 5 feet 5 inches, but the average thickness where mined at Drumheller is about 3 feet 6 inches. There is a band of bone varying from a thin parting up to a maximum of 12 inches, but in most places this band is less than 3 inches thick.

The roof of No. 5 Seam is shale and bentonitic sandstone, both of which are lensey in character. They form a good roof when dry but the sandstone will swell when wet and scaling will result.

The physical character of the coal varies from blocky in some sections to less firm structure along the outcrops. Generally the No. 5 coal has a pronounced lustre.

In 1921 there were eleven mines working in No. 5 Seam in the vicinity of Drumheller.

Mining Methods

In general, the system of mining is room and pillar with occasional modifications in order to use equipment most effectively considering local roof conditions. The width of rooms and of pillars varies and the advancing of rooms in panels may be scheduled to match seasonal production. There is one small mine operating longwall.

All of the coal is undercut, in some places the cut being placed in bands or benches of impurities. In eight mines there are shearing machines and Cardox is used in several in order to increase the percentage of lump coal.

It is estimated that for the field in general the production by sizes is approximately as follows:

Plus 4 in.	60 per cent
2 by 4 in.	10 per cent
1 by 2 in.	10 per cent
Minus 1 in.	20 per cent

Mechanization

The seasonal operation of mines in this field during the pre-War period tended to retard the introduction and the use of mechanical loading devices. However, a number of the coal operators have realized the advantages that may be secured by driving entries during the summer months with conveyors and duckbills and then transferring this equipment to room panels during the months when normally there is a larger demand for coal.

At the present time there are no mobile loaders working in coal in this field. Duckbills of various sizes and capacity have been installed in six mines. Some of this equipment has been used exclusively for entry driving. Data are not available to show the percentage of coal loaded on conveyors for the field as a whole.

In certain sections of the field where good roof conditions prevail there would probably be a substantial improvement in output per man-day if mobile loaders were used. There is a question whether as large a percentage of lump coal can be produced if loading machines are used. A comparison of the several factors that enter into the problem can be made only after commercial tests are made in the Drumheller field. Undoubtedly it would be desirable to make commercial runs on coal cut and sheared, shot, and loaded in various ways to determine the realization per average ton of product and the net return per ton after making appropriate charges for labor, supplies, power, maintenance and the depreciation of all equipment involved.

When slack coal is not marketable, the advantages of certain types of mechanization may be comparatively small.

Apparently the future of mechanical loading in this field depends very largely on

- (1) the possibility of marketing a substantial tonnage throughout the summer months, and
- (2) the developing of year-round markets for uncleaned small sizes.

HY-GRADE COAL MINING COMPANY, LIMITED

This mine in the No. 1 Seam is about 4 miles northwest of Drumheller. The shaft is 88 feet deep. In the old portion of this mine the seam is not over 5 feet, with bad roof conditions and a fault. A new section in the northeast is being opened beyond the fault, where both the top and bottom benches of the seam are merchantable. In the section visited there was good roof and a total height of 8 to 9 feet of seam. The top bench is about 5 feet, the bottom 3 feet 6 inches, with a parting of 6 inches of bentonite which weathers rapidly when exposed in the mine workings.

The wood tipple is served by four tracks with box-car loaders on three tracks. A new slope for air has just been completed. The fan furnishes 45,000 c.f.m. at 0.7 w.g.

Haulage

The track gauge is 30 inches, the cars holding 2200 lbs. The main-and-tail rope haulage is operated by a 75 HP motor. The main haul is 4200 feet and there are three 22 H.P. single-drum hoists for local haulage.

The seam is undulating and there has been considerable grading of the main haulage road. There are twenty-three horses underground, seventeen being used on the day shift and six on the night shift. As many as three are used in string teams hauling about 1000 feet to the partings. Ten drivers are employed in the two shifts, handling about 500 tons of coal and 100 cars of rock.

In order to have sufficient height to use ponies in rooms, a height of 4 feet 6 inches is provided by lifting bottom, if necessary. One man can brush two rooms per shift. As these rooms each produce 25 tons, the cost of brushing for hand-loaded coal is high. It was stated that considering the cost of drilling, shooting, hauling, etc., this brushing costs 19¢ per ton.

Mining Methods

There are seven shortwall cutting machines with 6-ft. bars and one shearing machine.

All coal is now loaded by hand. Rooms are driven 27 ft. wide on 45-ft. centers. All the high places are sheared and shot by four holes. Two men load out about 24 tons, picking out the bone, bentonite, etc., and loading the "grey" coal separately. The men are not paid for the slack coal.

Pillars will be mined where the coal is high, working open-end. Track will be laid along one rib and the men will be paid for double shovelling; nothing was said about putting a turn into the three-cut pillar, but, undoubtedly, this will be done. Monobel is used in brushing and pellet powder in the coal. The coal shot down was extremely blocky. The installation of duckbills is under consideration, particularly for the section of the mine where there is 4 feet of coal and poor roof. The plan would be to cut in the bentonite in rooms 27 to 30 feet wide with 40 to 45 ft. centers.

While the roof appeared to be good, apparently it does not stand well. All the new entries are being crossbarred on about 3-ft. centers with substantial posts. The cover is as much as 500 feet under the hills.

General

It was stated a new mine opening, possibly a slope, is proposed further up the valley where the railroad can be extended. This will reduce the underground haul and make accessible a large reserve to the north and east. Royalty is 5¢ per ton on all merchantable coal.

The following was given as indicative of the sizes produced:

Plus 4 in. lump	60 per cent
2 by 4 in. stove)	
1 by 2 in. nut)	20 per cent.
3/4 by 1 in. stoker	10 per cent
Minus 3/4 in. slack	10 per cent

RED DEER VALLEY COAL COMPANY, LIMITED

At this old mine, opened by a shaft, a 17° slope is being put down which will deliver coal to the old tipples. Belt haulage in the new slope and new mine cars are under consideration. Entries are being advanced by duckbills, but the adjacent new room work is done by hand loading.

Coal is undercut by a machine with a 7 ft. 6 in. cutter bar. The entries are double-shifted on day's wage, advancing five to six cuts per day. The coal is about 5 feet with two partings and considerable dirt, in fact, the coal being produced from these entries is being wasted. The roof is poor but it is hoped, on the basis of experience in the old mine, that these new entries will advance into good coal.

The old shaft reaches the No. 1 seam at a depth of 185 feet. The haulage is main-and-tail rope with a 80 H.P. motor for a 6000-ft. haul. There is an inby haul of 3000 feet with a 60 H.P. motor.

The mining equipment consists of five shortwalls and one shearing machine. The rooms are 25-ft. wide on 45-ft. centers and pillars are drawn.

With 180 men the production is 575 tons, or about 3.2 tons per man shift.

MONARCH COAL MINING COMPANY, LIMITED

This company is operating two mines, one north of Drumheller which will finish in January, and a new one called the Western Crown at East Coulee.

MONARCH MINE

The mine is opened by a slope 600 feet long in the No. 1 Seam which averages 5 feet 8 inches. Due to the poor roof and the impurities in the seam, particularly in the section below the bentonite, only part of the seam is mined. In the section visited, the coal being mined measures 4 feet 4 inches.

On the old mine map the following seam section is described:

Mussel bed	
Shale	2 ft. 0 in.
Sandstone	4 in.
Coal	1 ft. 10 in.
Clay	2 in.
Coal	3 ft. 5 in.
Grey coal	1 ft. 0 in.
Clay (bentonite)	4 in.
Shale	4 in.
Coal	3 ft. 0 in.

Mining Equipment and Practice

There are three shortwall undercutters, one universal cutting machine, and two shaking conveyors with duckbills.

In rooms 25 ft. wide, cut with a 7 ft. 6 in. bar, four top holes are drilled and two bottom holes. Fourteen feet steel 4 in. H beams are used for roof support and eight bars were placed. These are moved forward as the room advances. Posts are set to replace the rear bars by the face men. The deadpan system is used. The crew consists of a cutter and two face men, one boos and shotfirer, and one man at the loading point.

The practice is to push a trip of empties beyond the loading point and load out the entire cut of 25 to 28 tons without any delay for cars. Two or three cuts are loaded per shift.

The practice on the pillar unit is to drive up a room about 100 feet in the block to be mined and then to turn rooms (sub-rooms) right and left using a 90° angle trough. Two cuts must be shovelled by hand on each side before the duckbill can be placed in service.

The company has an additional conveyor unit and has not installed it because the men now employed as hand loaders are not willing to start at day rates which are lower than their

present earnings.

In the hand loading section of the old mine, where brushing in rooms is necessary, the practice is to take about 1 foot of bottom. In general, the mine produces four cars of coal to one of rock.

With 100 men per shift, the production is 680 tons, or about 6.8 tons per man shift.

WESTERN CROWN MINE

This is a drift opening to the No. 2 Seam which is a split seam with 5 feet 5 inches of coal above a rock parting of 1 foot, below which there is 3 feet of coal. At present entries are being driven and room necks are being turned off the butt entries so that duckbills may be set up later.

It is planned to drive rooms in the top coal, but the expectation is that the parting will become thinner and that the full height of seams may be worked later in rooms.

Haulage

The gauge is 42 inches and steel cars of 5 tons capacity will be installed. One 6-ton and one 7-ton storage battery locomotives have been installed. No horses are used.

Mining

There are two electric shortwalls, two shaking conveyors with duckbills, and hand-held electric drills. It is planned to mechanize this new mine completely.

With entry development only, the tonnage is about 80 for twenty-four men, or about 3.3 tons per man employed.

ATLAS COAL COMPANY, LIMITED

Commander Mine

This property was acquired recently by the present owners, operations starting May, 1944. Seam No. 1 is worked, the coal being 4 to 6 feet thick with an average of 5 feet. The cover may reach 700 feet. There is a wood four-track tippie.

Haulage

The mine track gauge is 36 inches. The cars are 11 feet long, 5 feet 2 inches wide, and 33 inches high with roller bearings. They hold 2.5 tons hand-loaded. The rails are 56-lb. and 30-lb. There is one mile of main haulage track and about one-half mile of secondary haulage.

The locomotives include one 13-ton trolley and one battery. Two 7-ton battery locomotives are under order.

Mining Equipment and Practice

The cutting equipment includes one universal track machine with a 9-ft. bar, two shortwalls with 6 ft. 6 in. bars, and one shearing machine.

Rooms are driven 27 feet wide on 40-ft. centers. Pillars are mined open-end, the timbers now being recovered. When the mine is operated full time, it is possible to drive up a room (250 ft.) and pull pillars by hand but, when the season is short, the recovery of pillars is not practical.

In solid work 60 per cent of 4-in. lump is made and in pillar mining the average drops to 55 per cent of 4-in. lump. At present 30 per cent of output is coming from pillars.

All mining equipment is permissible. Ventilation is 40,000 cu. ft.

ATLAS MINE

This drift mine is in No. 2 Seam. The seam averages 5 feet 2 inches clean coal (minimum 4 feet 10 inches, maximum 6 feet), with fair roof. As much as 1700 tons per day has been loaded over the three-track tipple which is rated at about 200 tons per hour.

Haulage

The cars when hand-loaded, average 4500 pounds, and when conveyor-loaded average 3200 pounds.

The main haulage is about 1.25 miles and the secondary

haulage is about one-half mile. The locomotives include one 6-ton trolley, one 9-ton battery, and one 7-ton battery (under order).

Ventilation

There is no gas. The fan capacity is 35,000 c.f.m. at 1.25 w.g.

Mining Equipment and Practice

The cutting machines include two universal permissible and three open-type shortwalls. There are three open-type large-size shaking conveyors.

Entries are driven with the duckbills and Cardox is used in entry work. Rooms are cut 22 feet wide and sheared. It is planned to recover pillars.

About one-sixth of the production is now coming from conveyors.

ROSEDALE COLLIERIES COMPANY, LIMITED

Upper Mine, Rosedale

This is a development in the No. 5 Seam which is 80 ft. above the No. 1 Seam. Only entries are being driven and they are now in about 700 feet. When the faces were visited, coal was 4 feet thick with fair roof but questionable floor. Where dry, the floor appeared to be sound. In the main entries, being driven double-shift, the cutting is being done with shortwall about 2 feet below the coal. The undercut clay and shale usually falls without shooting, and is removed by the duckbill with the assistance of bars. Following the removal of this waste material the coal is shot.

The coal is clean and it appears that the seam can be mined either by duckbills or by Joy Juniors loading onto chain conveyors.

Coal is being hauled by storage battery locomotive to the mine in the lower seam.

Lower Seam - Rosedale Mine

This shaft mine (40 feet) was opened in 1911. (Did not go underground.)

There is a five-track steel tippie with bins. The daily capacity is 1000 tons.

The coal seam is 9 feet thick with the customary bentonite parting. At the present, they are mining the top bench only. The roof is poor.

The track gauge is 36 inches and the cars hold 1 ton of screen coal (1-1/2 in.), or gross 2400 pounds. There is main-and-tail rope haulage, together with two 6-ton battery locomotives. Ponies are used in rooms.

Two duckbills are used for driving entries. Rooms are 25 to 27 feet on 35-ft. centers with hand loading.

The cutting machines are A.C. open type, including four shortwalls with 6 ft. 6 in. bars, and three snortwalls with 8 ft. bars.

This is an open light mine with 30,000 cubic feet of air per minute at 0.75 w.g.

The production is 500 to 600 tons with 150 men total.

MIDLAND COAL MINING COMPANY, LIMITED

The 9 by 19 ft. hoisting shaft is 135 feet deep. There is an air slope to depth of 200 feet. The upper bench only of No. 1 Seam is mined, with an average thickness of 5 feet to 6 feet. The roof is fair but systematic timbering is required.

There is a three-track wooden tippie with bins. Six pickers are employed on the tippie for a daily output of 800 tons. The total number of men working is 230.

A wire rope tram hauls away the mine rock which is reported as 6 per cent of the tonnage hoisted. There is no brushing, but on the mains there is a split of 15 to 20 inch rock in the middle of the bed.

Haulage

The track gauge is 36 inches. The wooden cars are of several sizes. The gathering is by horses. Storage battery locomotives haul about 2200 feet to the main-and-tail haulage, which is about 4000 feet. There is a haul of 600 feet by endless rope to the shaft bottom. The endless rope haul is 30 H.P., the main-and-tail rope is 50 HP, and the hoise is 100 HP.

Mining Equipment and Practice

The cutting equipment includes eight shortwalls with 6 ft. 6 in. bars and three track shearing machines. Eighty per cent of entry and room coal is sheared. Twenty-five-ft. rooms are driven on 45-ft. centers to a depth of 210 to 230 feet. Normally one man works in a room or on a pillar. The practice is to turn rooms right and left off the advancing entries, which are on about 50-ft. centers; 40 ft. of pillar is left along the entry.

After four rooms have been opened in sequence, pillars are started immediately. It was stated that as soon as pillars are drawn, there are good caves back to the entry pillar. There is no difficulty in maintaining the roads and the entry-timber during the life of the panel.

In driving rooms, the track is laid on the outby rib and the gob is placed on the entry side. There are two rather bad partings which the miner is required to pick out. The cuttings are gobbled as the contract is on the basis of the $1\frac{1}{2}$ in. plus coal. If the miner loads out the cuttings, at the request of the company, he is paid 50¢ per car. He is also paid for double-shovelling when necessary. The crosscuts are turned from the side on which the track is laid and turns are laid for the pillar drawing.

In advancing rooms, due to the poor roof, the loader is required to set "needle-bars" to protect the cutters and is paid for this extra work. Regular sets are placed, two to the cut, as well as about three needle-bars.

Where the cuttings and bone are gobbed, the room is piled high on the gob side. A fall of coal is usually about 30 tons and it takes the average loader three or four days to clean up a fall, as many of the loaders do not remain in for the full shift. The day is eight hours, bank to bank. Cutting is done on the afternoon shift.

Pillars are mined by taking a lift of 20 feet open-end off the 20-ft. pillar. Thirty-five per cent of coal is now coming from pillars. The practice is not to undercut these pillars.

It was stated that it would be impractical to produce clean coal if duckbills or mobile loaders were used.

EDMONTON AREA

Coal Seams

The coal seams mined in the vicinity of Edmonton occur in the lower coal horizon of the Edmonton formation (Report No. 34, Research Council of Alberta). Three seams have been mined extensively in the area, namely, No. 3, No. 4 and No. 7. No. 7 is about seven feet thick and lies approximately 120 feet above No. 4. No. 4 lies 25 to 40 feet above No. 3 seam, averages four to six feet in thickness and is as much as seven feet thick in several small areas. No. 3 Seam varies from ten inches to five feet in thickness. The formations are practically flat.

The coal from the several seams is classed as Subbituminous B and Subbituminous C Rank.

Mining Methods

Room and pillar is the prevailing system of mining and generally the pillars are not mined. However, in one of the largest mines the present method of mining is to drive rooms 12 feet wide on 77-ft. centers thus developing blocks 65 feet square. The blocks or pillars are mined retreating on a "break" line. The roof is fair and, when necessary, crossbars are used to support the working section until practically all the block

has been mined.

Longwall is used in a shaft mine operating on a five-foot seam at a depth of 175 feet. The wall is 400 feet long and the coal is hand-loaded onto a shaking conveyor.

Mechanization

Most of the coal mined underground in this field is loaded by hand into mine cars after having been undercut with electric coal cutters. Some experimental work has been done with shaking conveyors and dickbills. As noted previously in connection with the longwall mine, one shaking conveyor is installed on a face 400 feet long.

Due to the seasonal operation of most of the mines in normal times, a large capital investment for complete mechanization may not be justified. But in those mines where entry work can be mechanized effectively, loading machines or conveyors might be used in entries in summer and then transferred to panel and room work in winter.

GREAT WEST COAL COMPANY, LIMITED

Black Diamond Mine

This slope mine is 6 miles from Edmonton and has a good market seasonally for coal, the fine sizes going to the municipal power plant. The seam mined is called the Clover Bar and lies at a depth of 128 feet at the mine site.

The mine map shows the following generalized section:

Shale Roof	
Coal	1 ft. 0 in.
Shale	2 ft. 0 in.
Coal	5 in.
Bone	2 in.
Coal	4 ft. 0 in.
Hard Clay	

The dip is toward the southwest at the rate of 20 to 30 feet to the mile.

There is no gas in the mine and the fan furnishes 20,000 c.f.m. at 0.6 w.g. The track gauge is 21 inches; the steel cars hold 1600 pounds. The main-and-tail haulage extends for 5500 feet. The 50 HP motor hauls 40-car trips. Two (3 ton)

storage-battery locomotives haul from another section. Horses are used for gathering and haul up to 1500 feet.

Mining Equipment and Practice

There are four shortwall cutting machines with 6 ft. 6 in. bars.

The mining system is to drive entries 10 feet wide and rooms 12 ft. wide on 77-ft. centers, developing blocks about 65 feet square.

Rooms are driven up 250 to 280 feet and three pillars are mined in step on a breakline. The block is cut along one face leaving a small skip along the gob, and the track is laid parallel to the face so that three loaders may work at one time, each loading into a separate car. The height is 4 feet to 4 feet 6 inches. Crossbarring is necessary in places, but, in general, the places stand well until practically all the block has been mined at the rate of one cut per day. The loaders load twenty-two cars in pillars and fourteen cars in rooms. They push empties and loads not to exceed 250 feet (greater distance means extra pay). A fire boss loads and shoots. The men are paid extra for setting timber.

When all the coal in a block has been recovered, the timbermen go through the section and notch the posts so that they will fail. No timber is recovered. The crew on this pillar work consists of four timbermen for nine pillar loaders. Cutting is paid by the foot (in pillars). There is considerable refuse in the gob, as the cuttings appear to be dirty, and there is considerable bone.

In dull times (160 days per year before the War) the key men are kept, and cut, load, etc. With a reduced force the mine is operated at possibly 30 per cent of the mine capacity.

General

This mine appeared to be well-managed. Capital investment has been kept low due to market conditions. The haulage costs must be high.

There is a two-track tippie and no pickers in evidence.

The labor force reported was 83 men underground and 19 men on the surface, a total of 102 for a production of 350 tons.

KENT COAL COMPANY, LIMITED

Star-Key Mine

This new slope mine is located about 16 miles north of Edmonton. A large frame tippie has been erected with a bin-capacity of 900 tons in order to handle various sizes of coal for the local market. A considerable portion of the coal is taken to the municipal power plant. It is reported that it is planned to develop this mine to have a capacity of 2000 tons a day and 450,000 tons per year.

At the time of the inspection no decision had been reached as to the plan for hauling coal up the slope. There are two alternatives, either (1) dumping the mine cars at the foot of the slope and hauling the coal to the surface on a belt conveyor, or (2) using large drop-bottom cars and hauling these in trips up the slope to a bin on the surface.

The mine cars now in use are wood and the gauge is 36 inches.

The coal seam is as much as 11 feet thick with several partings of soft material. There is one parting of about 2 inches about 15 inches above the floor (as now cut) and a second parting about 18 inches above the lower parting. It was suggested that in mechanical mining these partings would break up and be in the 2-in. minus when the coal is screened.

It is proposed to leave about 18 inches of coal at the top and 2 feet at the bottom because the overlying shales have no strength and the material below the coal would soften if wet. The entries are being carried about 8 feet high and it is believed they should be only 8 feet wide as probably an entry, 8 feet wide, would stand without timbering.

Various possible methods of mechanical loading were

reviewed and the suitability of each for the conditions appearing in the mine were discussed. If the entries are driven narrow, in order to have roads that may be maintained at little expense, it was recommended that track cutting and shearing equipment be installed, so as to get the maximum tonnage per cut, the largest percentage of lump coal, and the maximum rate of advance.

If entries are driven narrow, it might be advisable to have long drop-bottom cars with a low loading end and high sides so as to secure the largest possible capacity. The development of a mining plan, including the mining of pillars will require most careful consideration in order to, (1) reduce personal hazards to a minimum, (2) secure the maximum recovery per acre, and (3) produce the largest possible percentage of lump coal, with (4) the most favorable labor and supply cost.

BARKER COALS, LIMITED

Penn Mine

This mine operates through an old shaft put down (75 feet) to work the upper seam (7 to 9 feet of coal). After this upper seam was exhausted, the shaft was sunk an additional 100 feet to reach the present seam, 5 feet.

This mine is about 18 miles from Edmonton and has a large truck business. Storage bins have been built to take care of the truck trade.

At present, longwall is used with only one wall in operation. The Company had four shaking conveyors and one duckbill at another mine. Part of this equipment has been transferred to this mine.

On the 400-ft. wall there is one longwall undercutter with a 6-ft. bar and a shaking conveyor with 20 HP drive in the middle of the wall. Cutting is done at night. All work is paid for on a day basis.

The crew is organized for the several shifts as follows:

Day Shift, Underground

24 loaders, who also drill
 3 shovelling bugdust from the gob side
 1 conveyor maintenance
 1 shot firer (lighter)
 2 chute loaders
 1 boss
 2 drivers (haul to the bottom is about 800 feet)
 3 cagers
 1 haulage boss
1 hoistman
 39 - Total Underground

Afternoon Shift, Underground

2 cutters
 1 timberman
 3 scrapers (putting big dust along gob side)
 2 timbermen (end of walls)
 4 packwall men
 2 cogmen (42 cogs)
 3 laborers
1 foreman
 20 - Total Underground

Night Shift - Underground

2 conveyor men (pan movers)
 3 laborers - supplies
 2 timbermen
1 foreman
 8 - Total Underground

Surface, Three Shifts

3 hoistmen (1 each shift)
 1 tippelman
 4 men on box-car loaders
 1 electrician
 1 blacksmith
1 boss (clerical)
 11 - Total Surface

Total Force, as above

Day, Underground	39
Afternoon, Underground	20
Night, Underground	<u>8</u>
Underground Total	67
Surface Total	<u>11</u>
Total.....	78

Assuming 400 tons, - 5.1 tons per man.

General

The roof condition is very poor and it was stated that room and pillar work would be very expensive. At the time of the inspection of this wall the cutting was in progress, the steel chocks (30-in. lengths of 60-lb. rails) were being moved. They are set on 9.5-ft. centers. There are "needle sets" every three feet which are supported by posts. These bars are set in hitches in the wall and also are supported by a post which is taken out as the cutting machine goes by. It appeared that in the double shovelling of the cuttings considerable dirt was picked up.

It was noted that as the cutting machine passed there was considerable evidence of the weight coming on; this also occurred when the steel chock was taken out. All the steel is recovered. There were no tools used in recovering this steel except a sledge and a short bar. The timbermen did a fine job in making the new chocks tight.

Ventilation was good, but there was no shooting on this shift. No gas is reported from the old gob. The work on the walls is dry.

The haulage road is in solid coal. It was evidence that an effort was being made to improve the haulage. There is a small hoist to move the cars under the loading head. Apparently, the management is satisfied that longwall is the best system for this coal seam. The bottom has been lifted on the loading track so that the conveyor pan may discharge into the mine cars without an elevator or goose necks, etc. The practice is to drive the entry some distance ahead of the wall, cutting with a shortwall. This is kept one cut ahead of the bottom-lifting which is as much as 3 feet in places.

LETHBRIDGE AREA

The reports of the Research Council of Alberta describe the geological formations and the coals produced in this area. (Reports No. 34 and No. 35).

Coal Seams

The coal beds have a slight dip toward the northwest and lie at comparatively shallow depths. While there are several seams in the so-called Lethbridge member of the Belly River formation, only one seam is worked extensively.

The coal seam varies in thickness from three feet to as much as nine feet, but in the two largest mines the average thickness is given as four feet four inches and five feet six inches, respectively. Along the streams the bed is accessible by drifts but the two largest operations are shaft mines, one being 260 feet deep and the other 359 feet.

The coal is classified as high-volatile C bituminous rank.

In general, the roof is rather poor and there are occasional faults. Due to the nature of the roof, entries are driven narrow and require close timbering. Locally, when there is sufficient height of coal, about eight inches of coal may be left as roof.

In some parts of the field there is a clay parting. Sometimes where this occurs the cutting is done in the clay and the cuttings are raked out and gobbled.

Mining Methods

The standard method of mining is room and pillar and, in general, the pillars are not mined. The coal is sheared with track machines wherever possible as large size coal is desired. In one mine it is planned to experiment with 15-ft. rooms on 75-ft. centers, with the 60-ft. pillars to be mined open-end on retreat.

A very interesting test is being made in order to develop the most effective plan for securing the maximum tonnage for each set-up of the conveyor drive. It is hoped that about five times as much tonnage may be produced from one set-up as from the standard set-up.

The plan is to drive a room 15 to 24 feet wide, (timbered with substantial 16-ft. crossbars), using a duckbill. Sub-rooms are turned right and left, using a 90° angle trough

and after four cuts the duckbill is installed. After the sub-room on the right has been driven 100 feet, it is stopped and a similar sub-room is turned on the left and driven 100 feet. Then the 90° angle trough is moved back about 40 feet and two more sub-rooms are driven. All timber and materials are recovered from the inby rooms which are caved. A shorter and lighter weight duckbill might be developed in order to reduce the amount of hand shovelling necessary in starting the sub-rooms.

Mechanization

In the larger mines of the Lethbridge field very enterprising and intelligent work has been done to secure coarse, sound coal, using various types of mechanical devices that are available for the prevailing working conditions.

In general, permissible electrical equipment is used underground. Electric hand-held drills are commonly used when there is any type of mechanical loading or application of conveyors.

Shearing machines are used in both entries and rooms. In rooms the shearing is generally done by a track machine, - sometimes the places undercut by shortwall machines are sheared.

No loading machines are in service in the Lethbridge field and at the present time a small percentage of the total output is loaded on conveyors.

Shaking conveyors have been tried in several mines, but due to the varying roof conditions all of the applications have not been successful.

In one mine visited there were two shaking conveyors with duckbills working. In rooms 24 to 27 ft. wide the coal was being shot with Carbox and the coal produced was of such a size that occasional lumps had to be broken as they were too large to handle over the conveyor.

LETHBRIDGE AREALethbridge Collieries, Limited

This company is operating two shaft mines, one at Shaughnessy, 263 feet deep, the other known as No. 8, 359 feet. The seam varies in thickness from 4 feet at one mine to 5 feet 6 inches at another and, in general, the seam is nearly flat.

The quality of the coal is reported by Stanfield and Lang in Report No. 35, 1944, p. 131, as follows:

	<u>Moisture</u>	<u>Ash</u>	<u>Volatile Matter</u>	<u>Fixed Carbon</u>	<u>B.t.u. (Gross)</u>
A	11.7	9.7	33.6	45.0	10680
B	10.7	9.8	34.7	44.8	10961 (Leth. Coll.)
C	10.5	13.0	34.9	41.6	10620

Sulphur about 0.5 per cent.

The Lethbridge Collieries report a number of faults (up to 20 feet) and some poor roof.

NO. 8 MINE

This plant was started in 1936 and the maximum production has been about 350,000 tons per year. The plant is well equipped and the buildings are brick and steel.

The coal is not over 4 feet 6 inches. In one section of the mine there is as much as 12 inches of clay in the seam about 18 inches above the floor. There is a dip of 1 in 75 towards the northwest.

The track gauge is 30 inches and the steel cars hold 2 tons. There is endless rope haulage on the mains and horse haulage on the butt entries. The entries are sheared and are driven 8 to 10 feet wide. Bottom is lifted in entries in order to secure adequate height.

Pairs of butt entries are driven on 400-ft. centers to develop panels of 1500 ft. Rooms, driven 27 feet on 36-ft. centers, are turned right and left on the butts and retreated. At present all the loading is by hand and pillars are not drawn, but an experiment is planned to drive 15-ft. rooms on 75-ft. centers and retreat the 60-ft. pillars open end.

Cutting machines consist of four shortwalls and two universal track machines. The entries are cut and sheared with the universal machines (including the rock in the floor which is to be lifted). The rooms are cut by the shortwalls and then sheared with the universal machine. When the cutting is in the bottom, the cuttings are gobbed by hand. Where the clay parting exists, the cut is made in the parting and the cuttings raked out using the universal machine. Shortwall cutter bars are 6 to 7 feet, while the universal machine has an 8-ft. bar (40 HP motor). A 50 HP universal machine with 400 feet of cable is under order.

Mining Practice

Shaking conveyors were used formerly in this mine, but due to the shortage of men, the quality of coal, the poor roof, etc., all these units have been removed.

Drilling is done by hand-held electric drills. Cutting is done on the night shift and on a "place" basis. The universal machines are favored because they will operate on 150 to 275 volts and, as they cut a narrow kerf, they will do well in cutting in shale, clay, etc.

There are about fifty rooms to be cut and a total of thirty entries and breakthroughs. To cut these daily requires that each universal machine must go into an average of forty places per shift.

The contract for loading assumes that three men will clean up a 27-ft. place in a shift, producing 27 to 30 tons. Cars are hauled by ponies (30) to the endless rope haulage. When the grades are not adverse, the men push in the empties. The men sink the ties in the floor, but there is no brushing in the rooms.

Of the coal as hoisted, 70 per cent is over 4 inches. The cuttings are left in the mine. With 250 men underground and 50 on the surface, the average production is 3.5 tons per man.

While there is no substantial amount of gas, some gas occurs in the faults. All electric equipment is permissible. There are no locomotives.

The hoist handles a cage in 29 seconds. It was stated that the hoist (500 HP) limits the output. Box-car loaders are used on all the coal except the slack.

The tipple and cleaning plant were not visited. The plant produces:

Plus 4 in. picked (number of pickers - 8)
4 by 1-1/8 in. spiralized
1/8 by 1-1/8 in. dry cleaned
Minus 1/8 in. discarded

For 1000 tons of coal hoisted, there are 300 tons of rock which is estimated to contain 60 per cent coal.

SHAUGHNESSY MINE

This mine, located 18 miles from Lethbridge, was opened in 1927. The same coal seam is worked as at No. 8 and varies in thickness from 5 feet 6 inches to 9 feet. In some parts of the mine there is bone near the bottom (30 per cent ash). Where this occurs the cut is made in the bone and the cuttings are gobbled.

In the sections visited, the coal was from 6 feet 6 inches to 8 feet. In one area where there is hand loading, about 8 inches of top coal was left up. In another, there 6 feet 6 inches of coal; 6 inches of drawslate was coming down. In another, the seam was 7 feet and the full height was being mined. At several places there were bands or inclusions in the coal which had to be picked out.

It was stated that the worst grades are about 4 per cent and on some of the roads travelled there were a number of places where the bottom had been graded 2 to 3 feet.

Endless rope haulage is used, the maximum length of haul being about 7000 feet. There are several secondary rope haulages, and gathering is by horses. The wood, end-dump cars hold 1.5 tons.

Mining Machinery

The 220 A.C. cutting machines are permissible. They include five shortwalls with $7\frac{1}{2}$ -ft. bars and five shearing machines. One universal track machine of a narrow type is under order. The narrow machine is being purchased because it can travel in narrow entries where the shaking conveyor is installed.

There are two shaking conveyors (with duckbills) in operation, two shaking conveyors (with duckbills) not in operation, and two shaking conveyors (without duckbills) not in operation.

The drilling is done with hand-held electric drills.

Mining Practice

The conveyor crews normally consist of a machine runner (handles duckbill, etc.), facemen, and a loading head man.

Extra effort is made to produce lump coal. In rooms about 24 to 27 feet wide, the practice is to drill two snubbing shots about 3 feet apart and 3 feet above the floor, the right hand hole being about 6 feet from the right rib. Then three holes are drilled in a vertical row above the snubbing shots, the top shot being light. These three holes serve to cut through the woody coal to the back of the cut. On inspecting the results of these five shots, it was found that the coal had been well broken.

When the cut is in the bony, the cuttings must be gobbed before shooting. One Cardox hole was drilled on the right side and three on the left. There was much large coal which had to be split into suitable lumps to handle on the conveyor. In general, the crew of three men in the room will make two cuts per shift.

In the experimental section the work is planned as follows:

A room 15 to 24 feet wide (with substantial 16-ft. S-2-S crossbars) is driven by duckbill. At its full depth sub-rooms

are to be turned right and left with a 90° angle trough and after four cuts the duckbill is to be installed in the sub-room. After the sub-room on the right has been driven 100 feet, it is stopped, and a similar sub-room is turned on the left and driven 100 feet. Then the 90° angle trough is moved back about 40 feet and another pair of sub-rooms is driven. All timber and materials are recovered from the inby rooms which are caved.

It was stated that one of the chief advantages of this arrangement is to increase the tonnage produced per set-up and per move. It was claimed that five to six times as much coal is available as in a standard room set-up.

It was pointed out that there will be considerable shovelling necessary in taking the four cuts in each sub-room by hand. A short light-weight duckbill should be designed and built for use in these 100-ft. sub-rooms.

At the present time about 35 per cent is loaded by conveyors.

General

The haulage roads are well-timbered with crossbars and posts.

There is much less brushing in this mine than in No. 8 Mine. The rock hoisted is about 10 per cent of the coal tonnage.

With the cuttings gobbled, it was stated in general that the shipments are:

Plus 4 in. lump	70 per cent
2 by 4 in. stone	10 per cent
Pea and stoker	20 per cent

On the four-track tipple there were nine men picking. The coarse coal is loaded into box cars and the small coal is spiralized.

The hoist is geared and can handle about 1000 tons in eight hours. Formerly 1500 to 1600 tons has been handled, working extra hours. The management stated that the best annual tonnage for this shaft has been 230,000 tons and that with 200 men they average 4 tons per man.

In general, the following points were developed as to this coalfield:

There is a proven area of 100 square miles of coal. The coal outcropping on the Oldman River has been worked out. The extraction has been 2,250,000 tons per square mile and there remains extractable a total of 225,000,000 tons. The average production has been 500,000 tons per year in recent years, but averaged about 350,000 tons per year for the period 1935 to 1941.

There has been a shortage of good men, due largely to poor working time in the summer. In 1943 the production per man day was 3.85 tons. For the year ended March 31, 1944, the output was 3.46 tons per man day, due partly to employing unskilled men.

MOUNTAIN PARK AREA

The coal seams of this area occur in the Luscar formation which is in the upper part of the Lower Cretaceous. Mining operations are at Mountain Park, Cadomin, Luscar, and at K and D. Mine.

The coal in this area is classed as High Volatile B Bituminous and Medium Volatile Bituminous. (Report No. 34, Research Council of Alberta.)

Coal Seams

Of the coal seams in this area, two are of particular importance; they range in thickness from 25 to about 40 feet.

Three seams have been opened in the Mountain Park area. The No. 1 or Kennedy Seam is 25 feet in thickness, the No. 2 Seam is 8 feet, and the No. 3 Seam is 32 feet. The cover varies from the outcrop to 1200 feet. The pitch of the measures varies from 15 to 60 degrees. There are some local faults.

In the Cadomin basin the strata are steeply dipping and in places overturned. The main seam being mined is 32 feet in thickness and the cover varies to about 2000 feet.

The Luscar - K & D basin is the continuation of the Cadomin basin and the mining is principally in one seam which is from 30 to 35 feet thick.

Mining Methods

In the Mountain Park area there is both underground mining and stripping. Cleaning plants are located at three of the mines.

The underground mining is carried on through drifts, tunnels, slopes, and shafts. The reserves are largely below water level, except such tonnages as can be stripped economically.

Various plans of opening the several seams have been developed to suit the local conditions. All of these may be

classed as modified room and pillar methods. The essential points are

1. In a thick, steeply pitching seam where the coal is friable and will run after being undercut, it has been possible to produce large tonnages from long, vertical rooms (or panels) without drilling and shooting. Substantial pillars are left between these long panels.

2. Under such conditions it may be advisable to locate the permanent haulage roads outside the coal seam in the wall rock. (See N. Melnyk, "Lower Level Operations in a Thick Steeply Pitching Seam," Trans. Can. Inst. Min. and Met., 1942, pp. 208 - 223.) The working sections and the non-active sections may be isolated from each other and from the main haulage roads by fire-proof and explosion-proof bulkheads and doors.

3. In a thick seam, angle rooms 8 feet by 8 feet may be driven up on a pitch of about 27° (in order to provide a better grade for travelling and for sliding the broken coal). The panel may thus be divided into blocks about 35 feet square set diagonally on the pitch.

4. By proper scheduling these pillars may be drawn safely without too much expense for timber and timber labor.

Mechanization

In the steeply pitching seams of the Mountain Park area, where the coal will run in the rooms turned up the pitch, there is no occasion for using any type of mechanical loading device. In entry driving it is practical to use air-driven loaders, duckbills, and conveyors generally, and where there is no gas or dust hazard the electrically-powered equipment of these types may be used effectively.

Where the main haulage roads are projected in rock, the conventional rock-loading machines have been used. There are four such rock-loading machines in the district. There are no coal-loading machines or conveyors in service.

Mountain Park Coals, Limited

This company began mining in the Mountain Park basin in 1913 and 1914. Three seams have been opened, namely, No. 1 or Kennedy Seam, which is 25 feet thick, No. 2 Seam, 8 feet thick, and No. 3 Seam, 32 feet in thickness.

At the mine the following description was given of the several coal seams:

Michelin 4.5 feet

This seam is clean coal and is not being worked now as it has been largely worked out.

Interval 350 feet

Shale roof occurs over the Kennedy Seam.

Kennedy

Coal, not clean 4 - 14 feet

Coal, clean, not being worked 8 - 16 feet

Interval 200 feet

Sandstone roof occurs over No. 1 Seam.

No. 1 Seam

Coal 8 feet

Shale floor

Interval 300 feet

No. 3 Seam

Coal 25 - 35 feet

The coal analysis given in the government reports is as follows:

Moisture	2.0 per cent
Ash	10.8 per cent
Volatile matter	26.0 per cent
Fixed carbon	61.2 per cent
Sulphur	0.5 per cent
B.t.u., as received	13,490

Mining Practice

The coal to be mined is blocked out into panels 1500 feet long with 150-ft. barriers between the panels. Main haulage entries are driven in the parallel No. 1 Seam, which is not commercial, and cross-measure tunnels are driven to the No. 3 Seam. The No. 1 Seam has a good sandstone roof and little

timbering is required in this haulage road. Loading chutes are located every 60 feet along the entry in the No. 3 Seam.

The average pitch of the seam is 33° , the rooms being driven on 27° to 28° in order to provide a better grade for travelling, for sliding the coal, and to permit dividing the panels into blocks. The blocks or pillars are about 35 feet square and are developed diagonally on the pitch. These pillars are mined ascending the pitch, permitting the roof to cave behind. The rooms, 8 by 8 feet, are carried on the footwall generally, but as there were a number of local faults, the development must be adapted to the conditions as found.

The coal is drilled by hand and is shot with Monobel No. 6. The rock in entry work is shot with 40 per cent dynamite, delay shots being permitted.

Pumping and Ventilation

There is no electricity used underground except to operate the pumps which are 500 volts A.C. There are three pumps working against a head of 550 feet, - 500 g.p.m. throughout the day. One pump requires 200 HP, one 165 HP, and one 100 H.P. When a panel is finished, it is the practice to build a bulkhead or dam to seal it off. These dams are reinforced concrete, 10 feet thick, with pipes, valves, etc.

Ventilation is supplied by two fans, each furnishing 30,000 c.f.m. at 1.5 w.g. There is little gas but there is the fear of outbursts of gas in mining pillars.

Haulage

The slope, driven through rock, is on 22° pitch and is 1457 feet long. The 350-HP hoist handles six cars. The track gauge is 36 inches and the cars hold about 1.8 tons.

Coal is hauled by horses to the main-and-tail haulage system which extends 4600 feet from the bottom of the slope. The haulage motor is 100 HP. Four battery locomotives are on the surface. One is used to haul from the top of the slope to the tibble.

Coal Preparation

At the well-constructed tipple and cleaning plant the cars are dumped in a rotary dump. The coal is passed over a picking table where any coarse rock is removed. The plus 1 in. coal is then crushed to 5 inches and the minus 1 in. is screened to remove the minus 3/16 in. size which is cleaned on air tables. The 5 by 1 in. coal is put through a jig, dried, screened, and delivered to the main conveyor. The 3/16 by 1 in. is sent to another jig, dried and delivered to the main conveyors. The coal sludge is recovered, dried, and delivered to the main conveyor.

The tipple is three-track and provision is made to load mine-run or lump, stoker, and slack. The cleaning plant will handle 150 tons of run-of-mine hourly and the plant generally runs eight hours. It was reported that the raw feed runs 23 per cent ash and the cleaned product 13 per cent.

The cleaning plant was built in 1938 and the sludge plant was added recently. The sludge recovered is 35 tons per shift. Lump is 30 per cent and 60 per cent of the coal is minus 1-5/8 in.

When labor was available, this mine produced 1800 to 2000 tons per day. With 440 men on the payroll, the average production was 1800 tons per day with 350 working shifts. At the time of the inspection with 60 contract miners, the product production was 840 tons, the total underground force was 120 and the total on the payroll 230 men. In the cleaning plant and tipple, 18 men work a total of 21 shifts to operate the plant for eight hours.

This property has much coal in reserve.

Cadomin Coal Company, Limited

This property and its mining operations are described in a paper by N. Melnyk, Canadian Institute of Mining and Metallurgy.¹

The Cadomin basin is situated on the east side of Nokanassin Range, the strata are steeply dipping, in places overturned, and the coal is intensely crushed. The coal is High Volatile Bituminous. The analysis given by the Government is:

Moisture	1.8 per cent
Ash	10.8 per cent
Volatile matter	28.3 per cent
Fixed carbon	59.1 per cent
Sulphur	0.3 per cent

Coal production is coming from four operations which may be described briefly as follows:

No. 1

This is a shaft mine in Cadomin No. 1 Seam which averages 33 feet in thickness. The upper levels of the adjacent drift mines have been largely worked out.

No. 2

The West Mine, is a drift and slope being developed. The slope will have a single-drum electric hoist with a 100 HP motor (440 volt). The power is rbought in from No. 1 Mine, voltage 2200 A.C. The output of 200 to 250 tons is trucked about 4.4 miles to the No. 1 Mine dump. The working force includes 17 men at the mine and 3 truck drivers. The drift has been extended 2000 feet to the property line. There is a maximum of 300 feet of cover over the drift level. The coal is being mined as in No. 1 Mine. A slope is being put down to 500 feet below the drift level to open a lower entry that can be driven back toward the upper workings of No. 1 Mine. There will be a horizontal development of 3000 feet between the old workings and the property line. On the shaft bottom

¹Trans. Can. Inst. Min. and Met. Vol. XLV, 1942, pp. 208-223.

level, the entries have been driven west a distance of 7500 feet, leaving 12,500 feet of coal on this lower level.

No. 3

This is a drift mine in the upper east portion of the operation with a cross-measure tunnel opening another seam. There is about 150 feet of coal above the tunnel level. The present output is 100 tons with a 2.2 mile haul. The working force is eighteen men, including truck drivers.

No. 4

This is a stripping operation started in June, 1944. It is now producing 1100 tons in ten hours, all of the work being contracted. The coal is hauled 2.2 miles in 6.6-ton trucks. The thickness of overburden, as well as the width of the seam, vary. To date the coal has averaged 80 feet in thickness and the seam appears to be clean. The hanging wall is hard sandstone which stands well, but the footwall breaks up and does not stand particularly well. At present the $1\frac{1}{2}$ cubic yard coal shovel is working on the sixth lift at a level 100 feet below the original coal surface. It is estimated that there is at least 400,000 tons of stripping coal available adjacent to the present workings.

In addition to removing the overburden from coal to be mined in the strip pit, bulldozers are used to remove the loose surface material over the outcrop where it is expected that mine workings will cave to the surface. Unless this clay, soil, etc., is removed, it will fall into caves and into the mine and be drawn out with the coal 1000 feet or more below.

The company has done much core drilling to prove the coal seam. It was stated that the average expenditure for this purpose is \$3,000 per month. The holdings cover six miles of outcrop and in another area an additional six miles of coal holdings.

No. 1 Mine

The details of the mining methods employed are given in the paper by Mr. Melnyk referred to previously.

The present shaft mine is in fact the fourth underground mine to be opened by the company. The early mines were all drift mines and a large tonnage of coal was mined on both sides of the valley. Mine No. 3, on the west side of the valley, was closed, partly on account of the great distance from the workings to the portal (over 17,000 feet), and partly on account of bad ground.

The shaft mine was opened about 1935 by sinking two shafts, each 14 by 22 feet, to a depth of 860 feet. These shafts were sunk in the rock at a distance of about 500 feet from the outcrop.

Rock Tunnels

A rock tunnel, 8 by 10 feet, is driven on a rising grade of one-half of one per cent from the bottom of each shaft, parallel to and about 100 feet from the seam. There is a smaller seam, or marker, about 3 feet thick lying above the 60-ft. sandstone forming the hanging-wall; therefore, the rock tunnels are on the far side of the "marker". (At the present time no rock tunnels are being driven.)

From these tunnels, rock cross-cuts or branch tunnels are driven to the coal seam at intervals of about 700 feet, tapping sections of the seam opened by the panels.

Tunnels are driven 8 by 12 feet and the counters 8 by 10 feet. Two air-driven rock loaders are used for driving these tunnels. Including the cost of the 50-ft. crosscuts, there is an approximate cost of \$50,000 per 1000 feet of advance of tunnel.

Panel Mining

The general plan has been to divide the seam into successive panels. These panels have various lengths from

500 to 1100 feet, but in the Shaft Mine the projected panels are from 500 to 800 feet, with 200-ft. barriers between the panels. The method of working the panels has been more or less standardized and as one panel is completed it is sealed off. Others ahead of it will be in various stages of operation or development.

To develop a panel, rock crosscuts are turned from the tunnels to tap the coal seam and, as soon as this is done, miners start driving the main and counter entries in the coal seam.

In the development of a panel, the first step consists of driving in the coal the horizontal main and counter entries which are 8 by 11 feet and 8 by 10 feet, respectively, with connecting raises. From the counter entry rooms are started at 30° pitch, which angle across the dip of the seam. Crosscuts on 60-ft. centers connect pairs of these angles. All of this development is adjacent to the sandstone hanging-wall. Before mining the pillars, footwall splits are driven off the angles, near their top. These also are driven on a 30° pitch, straight through the seam, part or all the way to the shale footwall. From these footwall splits, the pillar operations are started.

Under the pillars there is more intensive development to provide necessary connections for ventilation and escape roads, to mine stumps of coal, and to tap and win the loose coal in the pillar, if scale or large lumps of coal should come into the battery in the adjoining working place. The roads adjacent to the pillars stand for only a short time and soon become crushed, but not until they have served their purpose, and then the subsequent pillar operations cave the area out.

The pillars yield 85 per cent of the total production from the panel.

All the coal, both from the angle development faces or pillar batteries, slides to the entry in chutes lined with sheet-iron and located in the angles. The coal is loaded into 3-ton mine cars and after being assembled into twelve-car trains, these cars are taken by main-and-tail rope haulage to the shaft bottom.

Water sprays are used on the filled chutes and elsewhere throughout the mine to settle the coal dust.

In the extending of pillar operations in a panel, eventually the dome opened may become extensive and coal may fall in large quantities, faster than the transportation facilities can handle it; as a consequence, it piles up so high that all openings are closed and the dome is inaccessible. Operations then consist solely of drawing coal at the bulkheads, but the dome keeps enlarging and its extent is not known.

Over each panel a horizontal barrier is established extending, generally, 300 feet below the old workings, and no pillar section is started above this line. As caving extends upwards from the lower level, the apex of the dome will eventually extend through the 300-ft. barrier and break into the old workings above. This occurs from five weeks to three months from the time pillar caving starts. This is described as a critical time as large volumes of air, gas, or a mixture of these, in the inaccessible dome may come in contact with fire in the old workings above. It is believed that there is not enough oxygen in the old workings to support combustion. Absence of explosions in the old workings may be accounted for by this lack of oxygen.

As the dome keeps caving upwards through the old workings, a cave finally appears at the outcrop on the surface. Careful watch must be kept for the first appearance of this cave. It indicates that the space from the batteries to the

surface is completely filled with loose coal and gob. As the drawing continues, the gas previously accumulated and held under pressure in the dome finds a passageway through the voids of the gobs and escapes to the surface.

A panel, 500 feet wide, will produce about 250,000 tons of coal, of which 37,000 tons would come from development and 213,000 tons from pillars.

In order to make it possible to seal off any panel either during operation or following the drawing off of all pillar coal, steel doors are placed on concrete frames set in the massive sandstone in the rock corsscuts. If it should be necessary, 15-in. I-beams may be set against the closed steel doors. These sets of doors may be closed and secured in about ten minutes. When a panel is finished, panel stoppings at least 10 feet thick (with necessary piping set in) are placed 20 feet from the seam and the steel doors may be removed.

Fires

Spontaneous fires may start in an area as early as eighteen months after pillar extraction starts. In the lower workings, it has been found that a fire may occur within five months. Nearly every panel shows heating, and in about 40 per cent of them fire occurs before the panel is finished. In such cases, the fire must be isolated or the panel sealed off.

Removal of Gas

In addition to the normal ventilation of the mine, special attention must be given to the danger of the sudden release of gas from the heavy caving of coal in the panels, and provision must be made for the dilution and removal of this gas. Should a sudden increase in gas occur, all men exposed to it are removed from the section, and in the case of heavy "working" of the pillar dome, all men are withdrawn from the section or the panel to the rock-tunnel intake airway.

Ventilation

In order to prevent freezing in the shaft, four units of Trane heaters are installed in front of the fan to heat the air in wintertime. The fan located at the top of the 14 by 22 ft. shaft operates at 7-in. w.g. and forces the air through the shaft and rock tunnels into the various splits. Six-inch holes have been drilled from the surface through the rock to tap the pillar domes in four of the panels. Development in the mine was carried up to meet the holes and pillar mining was then started at some lower point. These boreholes were largely experimental and it was found that they did not greatly alter the flow of gas from the mine and their effect was quite local.

General

As the mine cars are loaded mostly from chutes, they are quite high, namely, 48 inches. The car capacity is 2 to 3 tons, depending on the loading. They are hauled to the shaft bottom in 16-car trips by main-and-tail rope, making the 6000-ft. haul in about fifteen minutes and four trips per hour. Horses are used for the gathering haulage.

Cars are hoisted singly and dumped in a rotary dump.

At the time of the inspection the property was producing about 1500 tons per day with the tippie running ten hours. Most of the coal was coming from the stripping pits.

The cleaning plant has a capacity of 75 tons per hour. The air tables handle 3/16 by 1-5/8 in. coal. There are ten pickers on the tippie.

There are large reserves of coal, particularly on the second level and at greater depths.

Luscar Coals, Limited

The Luscar basin is the continuation of the Cadomin basin and is also situated close to the east face of the Nika-nassin Range.¹ The coal is classed as high volatile B bituminous and medium volatile bituminous.

¹ Report No. 34, Research Council of Alberta, p. 174

The analysis given is,

Moisture	1.6 per cent
Ash	12.8 per cent
Volatile matter	20.7 per cent
Fixed carbon	64.9 per cent
Sulphur	0.5 per cent
B.t.u., as received	15,310

The production of this property at the time of the inspection was coming from several sources:

No. 1 Mine - No production	
No. 2 Mine - Glory Hole	600 tons
No. 3 Mine - Underground	200 tons
Stripping	300 tons
Burke Mine - Underground	100 tons
Total	<u>1200 tons</u>

All the work is done on the Jewell Seam which is 30 feet thick and, as it is intensely folded, there are places where it is much more than 30 feet thick.

As it is difficult to clean the wet coal from the stripping operation, the tonnage from the stripping for the time was held to 600 tons. All the coal from these operations is trucked to the cleaning plant. The raw coal is said to run about 15 per cent ash. The $2\frac{1}{2}$ in. minus is dry-cleaned. The raw coal of this size contains about 17 per cent ash and when cleaned is 12 to 13 per cent ash. The plus $2\frac{1}{2}$ in. averages about 10 per cent ash.

There are 215 men on the payroll. The stripping and trucking are contracted; the Glory Hole operation is all company work.

No. 1 Mine

This is a slope mine which normally produced 700 to 800 tons but was not in operation at the time of the inspection. The slope is in rock, 800 feet, cross-section 8 by 12 feet, on a pitch of 19° .

This company has been working several folds of the Jewell Seam. Cross-measure tunnels (8 by 15 ft.) are driven across these folds and tunnels are driven along the strike to develop the various limbs of the folds. The original rock tunnel was at an elevation of 5000 feet (Luscar is at 5400

feet). The new slope is S 12° W and reaches to the 4600-ft. level. The folds are N 60° W and various tunnels are driven on this course. The company has two air-driven track loaders, which were bought in 1941.

Panels on the coal seam are 1000 feet long and barriers are about 150 ft. wide, although they are frequently extracted. The same general method of mining is used as at Mountain Park. The haulage is main-and-tail rope.

No. 2 Mine

The seam is nearly vertical and has varied in width from 40 to over 100 feet. The surface has been stripped and deep holes are drilled to reach the counter level in the No. 2 Mine. The coal is shot and drawn into chutes about 60 feet apart. From these chutes the coal is loaded into mine cars and hauled to No. 2 drift mouth and thence by trucks to the cleaning plant.

No. 3 Stripping

There is 80 feet of coal exposed in this pit, which will be approximately 1000 feet long. It is reported that additional stripping areas are available. There is a three-mile haul from the pit now open to the cleaning plant.

The stripping is done by contract, as well as the hauling to the cleaning plant.

No. 3 Mine

This drift mine was started in February, 1944, on a three-shift basis. All the mining is done by hand and the haulage is with horses.

The 10 by 10 ft. drift, with a counter level 50 feet above, is now in 4200 feet. The cover is 250 feet and it is anticipated that the maximum cover will be 700 feet.

It was stated that the normal crew on the day shift consists of,

7 miners
2 timbermen
2 drivers
1 brattice man
1 fire man
1 pit boss

The plan is to drive to the limit of the area to be mined and then to put up angle rooms, following the system used in the other mines, and pull the rooms and pillars on a retreating system. It is assumed it will be possible to maintain the roads, etc., in the coal seam without too great expense.

The coal is very soft and much broken. Permissible powder is being used.

The production is about 75 tons per shift. There is a 50-ton bin at the mine and a 500-ton bin at the cleaning plant. The run-of-mine coal is trucked three miles to the cleaning plant.

General

This company looks forward to developing a substantial tonnage above water level that can be trucked to the cleaning plant. It has been estimated that 15 years' production can be secured from operations similar to the No. 3 drift mine.

Apparently, extensive exploration is planned to work single folds of the seam in this manner, where stripping and glory-holing is not practical. The driving of cross-measure tunnels may be practised when the coal in several folds above the water level can be reached to advantage from one pit mouth. Undoubtedly, much will be learned in the next few years as to the relative economy of driving in the seam at such depths and cross-measure tunneling.

NORDEGG AREA

The coal seams of this area are in the Luscar formation of the Lower Cretaceous. There are at least five coal seams in the Luscar formation. The coal in this area is classed as Low Volatile Bituminous. (Report No. 34, Research Council of Alberta).

Coal Seams

There is only one group of mines opened in this field. No. 2 Seam is about 6 feet thick and No. 3 Seam is about 13 feet in thickness. The average dip of the coal seams is about 12° to the south-west. The thickness of cover in the operating sections of the mines is 400 to 600 feet and as the slopes are extended the depth of cover is increasing rapidly.

In general the roof is good. There are occasional step faults in the mines.

A cap rock occurs over No. 2 Seam. This cap rock (6 inches) is taken down in entries but held where possible in rooms.

Brazeau Collieries, Limited

This company is operating two mines, a cleaning plant, and a briquetting plant.

Mine No. 3

This is a slope mine on a 13-ft. seam (No. 3) which pitches about 12°. The slope is down 3500 feet on the dip.

The seam section given on the mine map follows:

Roof	
Coal	2 ft. 8 in. - 3 ft. 6 in.
Shale	2 ft. 3 in. - 4 in.
Coal	4 ft. 0 in. - 6 ft. 0 in.
Inferior coal	10 in. - 14 in. (14 to 35% ash)
Coal	4 ft. 0 in. - 6 ft. 0 in.
Floor	

Haulage

The track gauge is 30 inches and the wood cars hold 2300 pounds level full. Mine car trips are handled on the slope.

Horses are used on the levels and in the rooms, there being forty in this mine.

Ventilation

The fan moves 42,000 c.f.m. at 0.25 w.g. Another fan on No. 2 Slope handles 72,000 c.f.m. at 2.0 w.g.

Mining

The slope pillars are 100 feet; levels are 300 feet apart with counter levels at 100 feet. Rooms, 10 feet wide at the roof and 15 feet wide at the floor, are turned at 80 to 100 feet with crosscuts every 100 feet.

All coal is broken by airpicks mining on the bench. There is no drilling and shooting. All the coal is shovelled into cars, about 42 inches high, and paid for on mine-run basis.

In entry-driving two men advance the face and set the timber with lagging. The sets are heavy and block and tackle is used to place the crossbars which are about 12 inches in diameter. At the time of the inspection, pillars were not being drawn.

Step faults are shown on the map on 3 Left Level, No. 2 Slope, No. 3 Seam. The roof was reported good in this section.

The output is 800 tons per day from this slope.

Mine No. 2

This mine is on No. 2 Seam and produces 400 tons from two openings. The hoisting is on two shifts. Slope No. 1, down 4000 feet, is equipped with a 125 HP hoist which handles nine cars per trip. Twenty loaders produce 200 tons in this slope. Slope No. 2 is down 2000 feet. It produces 200 tons with 20 men.

The seam is 6 feet high with 6 inches of cap rock. This cap rock is taken in entries but is left in rooms wherever possible.

Entries are driven on 100 ft. centers with 300 feet between the levels. Rooms, 10 feet wide, are driven on 80-ft. centers. Sets are placed on 4-ft. centers with board lagging. On entries the sides are lagged to keep the road clear of coal from the ribs and to hold the waste picked out by the loaders.

General

Pillars have been mined in the levels above the old water level. This practice was discontinued some time ago.

McGinty's are used in rooms up the full pitch and the size of the mine car has been determined by the size and weight that can be handled by a McGinty. Cars are pushed in the crosscuts between rooms which are on 100-ft. centers. In rooms on the strike, horses are used, one horse and driver serving two or three pairs of men.

Two boreholes have been put down which show a slight flattening of the coal with depth. It was stated that the continuity of the beds with depth is assured.

Cleaning Plant and Briquette Plant

The plant feed is 17.5 per cent ash; the cleaned coal is 13.5 per cent ash; and the reject amounts to 7 to 8 per cent.

All the coal is broken to 6 inches. The 6 by 3/4 in. is washed in a Vissac jig (40 tons per hour). The 3/4 by 1/4 in. is cleaned by air tables of 60 tons per hour capacity. The minus 1/4 in. is briquetted. The present capacity is 1200 tons and of this 50 to 60 per cent is briquetted. The washed coal is passed through a Vissac drier.

The product is 20 per cent 6 by 3/4 in., 30 per cent 3/4 by 1/4 in., and 50 per cent minus 1/4 in.

The B.t.u. value of the 3/4 by 1/4 in. is reported as 13,400 and the briquettes of 1/4 in. (12.8 per cent ash) is 13,800.

The briquetting equipment includes the following:

2 units - 10 tons per hour
1 unit -- 20 tons (being repaired)
1 unit - 5 tons (formerly binderless, being
made into a binder unit)
1 unit - 30 tons (cost \$100,000)

Total rated capacity - 75 tons per hour

Assuming operation for 24 hours at 50 tons, the daily capacity would be 1200 tons. A grinder has been ordered to reduce 3/4 in. to 1/4 in.

Briquettes are made in two sizes, namely, 2 oz. and 4½ oz. The amount of binder-oil used varies with the requirements of the customer. Locomotive briquettes contain 3 per cent binder, while commercial briquettes contain 7½ per cent binder. The railroad has asked for the entire output to be briquetted, and is at present taking all the coal and briquettes produced. Briquettes are preferred owing to the low losses in the stack. The sulphur in this coal is low, about 0.5 per cent, making it an exceptionally fine locomotive fuel.

TABER AREA

There are numerous thin coal seams throughout the Foremost formation of the Belly River Series of the Upper Cretaceous, the principal coal-bearing horizon occurring near the top of the formation. (Coal Areas of Alberta; Report 34, Research Council of Alberta).

The principal seam mined varies in thickness from about 2 feet to a maximum of 4 feet 4 inches. The cover varies with the locality and in the vicinity of Taber is about 160 feet thick. The coal is classed as sub-bituminous A and sub-bituminous B rank.

The following information on operations in the Taber field was furnished on November 11, 1945, by C. S. Robinson, General Manager, Western Ventures, Limited, a stripping operation subsidized by the Dominion Government, through the Emergency Coal Control Board.

There are five stripping operations in Eastern Alberta: (1) Taber, (2) Grassy Lake, (3) Eyremore, (4) Camrose Colliery at Camrose, and (5) Castor, operated by Winnipeg Supply and Fuel Company.

Western Ventures, Limited

This open pit, located about 29 miles east of Lethbridge, is producing from a seam that averages 39 to 48 inches. The average thickness of overburden stripped is 25 to 32 feet. No shooting of overburden is necessary, although there is some "iron band" in the shales. There are seven Le Tourneau units in operation.

Production in 16 hours is 1200 tons when working six days per week. The plant was built in the fall of 1943 and between July 2 and August 28, 1945, the output was 29,000 tons. The plant was idle in September, due to no market for the small sizes. Operations were resumed October 1st and probably will continue all winter due to the coal shortage. It is presumed that in normal times this plant will not be able to operate due to lack of market for this quality of coal, particularly the small sizes.

Coal is trucked six miles to a ramp and small tipple along the railroad. The sizes made are as follows:

Lump	4 in.	not picked
Egg	2 by 4 in.	not picked
Nut	1 by 2 in.	
Stoker	3/8 by 1 in.	
3/8 in. by 0	is wasted.	

The 3/8 in. by 0 represents 11 per cent of the tonnage mined and contains about 16 per cent ash. Recently the coal as shipped was analyzed as follows:

Moisture	14.0 per cent
Ash	9.6 per cent
Volatile matter	32.4 per cent
B.t.u., about	10,150

The coal will not stand storage.

The stripping, loading of coal, and trucking is contracted. The trucking is \$1 per ton for 6 miles. It is

recognized that for hauling this distance over good roads the rate is high, but this is due to the uncertain nature of the operating time.

The company employs 42 men in two shifts. The coal is loaded into box-cars and considerable of it is being shipped east of Winnipeg. It is feared that as soon as the present demand is supplied, this particular operation will be abandoned.

This company was organized to operate during the emergency period.

Continental Coal Corporation, Limited

This operation is a stripping mine at Grassy Lake, also under Government subsidy. The section being mined is approximately as follows:

Surface stripping	10 ft.
Coal	2 ft. 4 in.
Shale	10 ft. (no shooting required)
Coal	1 ft. 8 in.
Shale	5 ft. (no shooting required)
Coal	1 ft. 6 in.

The plant has double loading facilities and can handle up to 800 tons per shift.

Brooks Area

Birnwel Coal, Limited, Eyremore

This is described by the Alberta Department of Mines as 5 ft. coal, thickness of cover 20 to 25 feet. Report of the Research Council, No. 34, states,

"In the Brooks Coal Area one coal seam 5 feet in thickness has been opened in the Bow River Valley at Eyremore. The seam is mined by stripping operations on a lower bench in the valley, and by a shaft 150 feet deep on the upland. The coal is classed as sub-bituminous B rank. There are a number of thin coal seams in this area."

The analysis given in Report No. 35 for the Brooks area is:

Moisture	17.4 per cent
Ash	11.9 per cent
Volatile matter	31.1 per cent
Fixed carbon	39.6 per cent
Sulphur	0.7 per cent
B.T.U.	9,280

This operation at Eyremore is 60 miles northeast of Taber, is new, and has a capacity of 2000 tons in 16 hours. Probably it will be continued after the emergency has passed.

Camrose Area

This is described in Report No. 34 of the Research Council as being in the Edmonton coal horizon. Some seams are outcropping and some have been opened by mining operations where the thickness varies from 4 to 7 feet. Six stripping pits were operated in 1943 with an output of 64,000 tons.

Castor Area

The coal measures of this area are in the Edmonton coal horizon. The coal seams vary in thickness from 3 to 8 feet.

The coal is described as domestic, free burning, and smokeless. The principal output is sub-bituminous C, but some sub-bituminous B is also mined.

Analyses are given for a wide range of coals:

	<u>A</u> <u>%</u>	<u>B</u> <u>%</u>	<u>C</u> <u>%</u>
Moisture	25.2	26.4	29.5
Ash	6.7	6.3	6.2
Volatile matter	29.0	29.0	29.6
Fixed carbon	39.1	38.3	35.7
Sulphur	0.4	0.4	0.4
B.t.u.	8710	8550	7980

A stripping pit has been operated by the Winnipeg Supply and Fuel Company.

BRITISH COLUMBIA

REPORT OF INSPECTIONS

VANCOUVER ISLAND AREA

The early history of coal mining on Vancouver Island was summarized by G. M. Dawson in Geological Survey Canada, Annual Report 1887 - 1888, p. 80 R. While coal mining at Nanaimo began in 1852, detailed studies of the coal measures were not made until 1871. Field work was carried on by the

various surveys and private corporations in the following years.

The coal resources of Southern Vancouver Island were reviewed by J. D. MacKenzie in a report issued by the Geological Survey, Department of Mines, Ottawa, June 1, 1923.

Coal Seams

The mineable coal seams are in the Nanaimo series in the Upper Cretaceous. The Nanaimo series occur in four principal areas on Vancouver Island, all of which have been explored. Most of the areas have been explored very intensively. Coal is not known to occur in workable seams in two of the areas.

In the Nanaimo area coal occurs chiefly in the lower part of the Nanaimo series, in three seams, - the Wellington, the Newcastle, and the Douglas. The Newcastle Seam overlies the Wellington Seam about 800 to 1000 feet, while the Douglas Seam is from 25 to 100 feet above the Newcastle Seam.

Cumberland Field. This area has been producing coal for many years and much information has been accumulated both from actual mining and by extensive drilling. The measures have a general, northeasterly dip, modified by gentle folds. Faults are present but are not severe.

Tsable River Field. This adjoins the Cumberland area on the south and has an estimated area of about 12 square miles. The coal measures have a northeasterly dip of about 7°. MacKenzie says,

"There has been some folding, and the effect of this disturbance, superimposed on initial irregularities in the seams caused by the uneven topography of the basement rocks on which they were accumulated, has caused the coal to occur in more or less distinct basins.

"The coal occurs in at least five principal zones which may consist of one or more seams, and which are markedly variable from place to place. Each of the five zones contains coal over 3 feet thick at one place or another. This distribution of the workable coal vertically as well as horizontally is a factor which must be considered before mining operations are undertaken in this area."

Nanaimo Field. This field covers about 65 square miles of coal-bearing measures, including both land and submarine areas. This area was studied in detail by C. H. Clapp in "Geology of the Nanaimo Area," Geological Survey, Can. Mem. 51, 1914. He described the three productive coal seams, the Newcastle being from 800 to 1000 feet above the Wellington and 25 to 100 feet below the Douglas.

"The measures have a general moderate northeasterly and easterly dip, modified by some pronounced open folds and a few faults. All the seams vary characteristically in their thickness from place to place, to such an extent that an estimate of the quantity of coal in the field is particularly difficult. Both the Douglas and the Wellington Seams range from almost nothing to 30 feet, and the Newcastle Seam is also irregular."

Coal Reserves

An estimate of the coal on Vancouver Island was included in "The Coal Resources of the World" published in 1913. This included seams of 1 foot or over occurring to a depth of 4000 feet. In 1923 MacKenzie wrote,

"In discussing the future of the coal mining industry at Nanaimo, Clapp gave an estimate of the amount of coal in that area; this estimate is apt to convey an erroneous impression to the casual reader. Clapp includes coal seams of a thickness of 1 foot or over to a depth of 4000 feet below sea level, and arrives at a conservative estimate of 1,340,000,000 long tons. It is extremely doubtful that there is this quantity of coal in the Nanaimo area and the present estimate indicates that the figure is about five times too large."

In his submission presented March 26, 1945, Mr. H. R. Plommer, General Manager, Canadian Collieries (Dunsmuir) Limited, which controls the most extensive coal fields in Vancouver Island, and also is the chief producer, made a concise statement regarding the known coal reserves in the areas now being worked. He summarized the available data resulting from mining operations, diamond drilling, prospecting, and development carried out by the Company itself. The figures given were:

1. Definitely proven reserves	6,660,000 tons
2. Probable	26,397,000 tons
3. Possible	231,220,000 tons

In addition to the above tonnages in the districts where these classes can be identified, there are large coal-bearing areas about which no definite information has been available.

Extensive drilling has been done by the Canadian Collieries (Dunsmuir) Limited, and its predecessors, as indicated by the following statistics:

Nanaimo Coal Field - 327 holes drilled, of which number 194 showed no seam more than 30 inches thick.

Cumberland Field - 122 holes drilled, of which number 65 showed no seam more than 30 inches thick.

Tsable River Field - 45 holes drilled, of which number 21 showed no seam more than 30 inches thick.

A program is in progress to drill twelve holes of approximately 22,600 feet.

In 1939 Dr. A. F. Buckham of the Dominion Geological Survey started a survey of the coal areas. Recently this work has been resumed following an interruption due to the war.

This study by Dr. Buckham has covered the coal fields of Vancouver Island including the following areas: (1) Nanaimo, (2) Gulf Islands, (3) Cumberland, and (4) Cowichan. There are no data to justify any hopes of finding seams of commercial value in Cowichan and on the Gulf Islands.

Detailed report of Dr. Buckham will be made through official channels in due course.

In general, it is the consensus of opinion that favorable showings of coal in occasional drill holes are not sufficient to warrant substantial expenditures for mine openings, plants, and equipment. Before deep shafts and underground development are started there should be systematic drilling over the area. The average of a large number of holes should be determined and this average should be the governing factor in determining whether the project is justi-

fied commercially. In arriving at the average, not only the actual thickness of the coal seam, and the partings if any, must be determined but also the quality of the coal, its washability, and other properties. Some of the seams become inferior with depth and there is wide variation in quality sometimes due to folding, which has resulted in much rock and dirt occurring in the seam. As there is no definite pattern to the irregularities, it is impossible to project underground mine development over any considerable area and the sinking of deep shafts has appeared to be attended with much commercial risk.

Canadian Collieries (Dunsmuir) Limited

A complete statement of the coal reserves and mining operations of this company which is the chief producer of bituminous coal on Vancouver Island has been filed with the Commission by the General Manager, Mr. H. R. Plommer. Some of the essential features of the present mining operations are presented briefly in the following notes.

The mining operations are located in

(1) Nanaimo - Wellington District and

(2) Comox District, with a development at Tsable River to the south of the Comox District proper.

In the Nanaimo-Wellington District the operations are in the Wellington and Douglas Seams, while in the Comox area (Cumberland) seams called No. 1, No. 2, and No. 4 have been worked.

White Rapids Mine

This mine, located $8\frac{1}{2}$ miles from Nanaimo, was opened by slope to the Wellington Seam October, 1944. The Wellington Seam is the lowest seam geologically in the Nanaimo area, varying in thickness up to 20 feet. In this mine it ranges from 34 to 50 inches. The rock slope was put down in the conglomerate 550 feet on a slope of 1 in $3\frac{1}{3}$. The coal dips 1 in 6 feet and entries in the coal have been driven about 1200 feet.

Four longwalls have been opened, but owing to faults, poor roof, etc., two were shut down at the time of the inspection. The standard length of wall is 300 feet, advancing on the strike. The haulage entry is at the bottom of the wall and is carried 25 feet wide and about 50 to 60 feet ahead of the wall in order to provide space for the empty cars which are pushed ahead of the loading point. An air course, 12 feet wide, is carried 50 feet below the wall. The haulage way is bottom-brushed so that the shaking conveyor may load into the trip of mine cars.

An air-driven top-cutting machine with a 6-ft. bar is used. The cutting machine that cuts the haulage entry is the same one that cuts the wall. The machine cuts up the wall, then back, and makes two cuts in the haulage entry before starting again on the wall. Two 300-ft. walls were traversed. One averaged 30 inches and had poor roof. The cuttings must be gobbed. The floor was rough as the bottom coal was frozen to the fire-clay bottom.

Where the roof is particularly bad, it has been the practice to support the roof, after top-cutting, by the use of 30-lb. steel rails. A hole 10 inches deep is drilled in the back of the cut by a jackhammer. On the inby end of the steel rail there is welded a steel pin about 2 inches in diameter and 8 inches long. This pin is pushed into the above-mentioned hole and serves as the inby support for the steel beam which is supported at its outby end by a post. These beams are placed about 4 feet apart, depending on the character of the roof.

Chocks are not used systematically on the wall of 30 inches of coal, but on the wall of 45-in. coal, which is bottom-cut with a 6-ft. bar; the chocks of 4 to 5 ft. timber (about 4 by 6 inches) were set on about 15-ft. centers. No chocks or posts are drawn. There is considerable effort to build packwalls at the ends of the walls, but the waste material

available is rather soft.

Several small faults were noted on one wall, and two walls were stopped owing to "troubles".

There are three air-driven longwall cutting machines and one air-driven shortwall. The five shaking conveyors are also air-driven.

All work is on a day basis. Where the cutting is in the top, the machine can cut only 100 feet per shift, which necessitates cutting on all three shifts to prepare a 300-ft. wall. The man-shifts required for a 300-ft. wall are approximately as follows:

- 3 machine shifts
- 3 helper shifts
- 6 mucker shifts (gobbing the cuttings from
the top cutter)
- 3 timbermen
- 4 driller shifts
- 2 cog-building shifts
- 15 loaders
- 3 chuckers (loading and pushing cars to the rope)
- 12 brushers - on the ends of the wall
- 57 - Total (excluding boss and shot firer)

Assuming a 300-ft. wall, 2.5 ft. coal, undercut 5 feet will produce 150 tons, the production is not over 3 tons per man to the rope.

On the wall that is cut by shortwall, the cutting is done in two shifts and the tons per man is better. The moving of bug-dust would not be so difficult and about 53 men should produce 225 tons, or 4.24 tons per man shift.

A duckbill and shortwall cutter are available for entry driving.

There is a frame tippie, with a rotary dump for the coal. The slate cars are pushed around the rotary dump and dumped across the railroad track. The mine cars are 30-inch gauge and hold 1700 pounds. The slope is served by a geared hoist with 150 HP motor which handles a trip of 8 to 10 loads.

The 2-in. lump is picked by two men and loaded over a loading boom. The 2-in. minus is sent to the washery at Nanaimo.

The mine has about 340,000 tons of solid coal. On three shifts a total of 85 men, 74 inside and 11 outside, are producing 100 to 150 tons of coal.

No. 10 Mine

This slope mine on the Douglas Seam was opened in 1937 and has a limited life, probably 2 or 3 years, due to the fact that the workable area is limited by intrusions and by the old workings of other mines.

Coal is hauled by rail to the Nanaimo washery.

The coal seam pitches about 12° and varies in thickness from 4 to 10 feet with an average of 6 feet. In general, the roof is bad and the coal is friable and dirty. There are many serious rolls in the floor. The faces of the mine inspected were quite wet.

The slope has been extended to the limits of the coal, about 7000 feet. There is only one small section of solid coal remaining. Most of the production is coming from pillars.

The maximum cover is 1100 feet and there is considerable gas. The system of mining is bord and pillar, the entries being driven on the strike. The rooms are 13 feet wide on 80-ft. centers. Coal is drilled by hand.

Due to the friability of the coal, the proportion of lump is about 10 per cent which may be compared with 35 per cent from the Wellington Seam.

With the tippie operating on a three-shift basis, the daily tonnage is about 900 tons. Of a labor force of 255 total, 37 are employed on the surface. For a typical month when an adequate labor force was available, the output per man day was 4.037 tons. For the year 1944, the output was 4.0768 per man shift.

In his submission to the Commission, General Manager Plommer said in discussing this mine,

"It has been proven that the Douglas Seam at depth is not mineable for two main reasons, in addition to the general erratic conditions for which this seam is famous. These are

(1) that below the 1100-ft. mark approximately, blow-out conditions are so hazardous as to make mining prohibitive, and

(2) in the southern end of the field, the coal at depth becomes so poor as to be of no commercial value."

Comox Colliery

(No. 5 Mine)

This shaft mine in the No. 2 Seam was opened in 1895. The coal is hauled 21 miles to Union Bay. The shaft is 280 feet deep and all the workings lie to the dip from the shaft. There are four parallel slopes ($7\frac{1}{2}^{\circ}$) driven from the level of No. 1 Seam on which the shaft bottom is located.

The seam averages 3 feet 6 inches. Partings in the coal limit its mineability. The seam is undulating, the steepest pitch being 13° . The system of mining is advancing longwall, with walls about 300 feet long. The mine workings have advanced 12,000 feet down the dip.

Some No. 1 Seam was worked originally and an effort was made to mine No. 4 Seam but the roof was too poor and there are some faults.

Various systems of mining have been tried in the past, including electric cutters in McGinty rooms. Belt conveyors were used in 1924.

At present the output is 450 tons in two shifts with an average working force of 220 to 225 shifts. All work is done on a day basis. The output per man shift for 1944 was 2.104.

The seam section on the wall visited contained partings which reduced the mining height to 30 to 45 inches. The cutting is done in the bone about 6 to 8 inches above the floor and the cuttings are gobbled. The top coal is shot by holes about 10 feet apart (Monobel No. 4) and the bottom coal is

lifted by hand. The brushing of the roads at the end of the walls requires the handling of much rock. At the place visited, at least 4 feet of rock and poor coal was being handled.

The walls are equipped with compressed-air shaking conveyors. The cutting is done with compressed-air machines and drilling with rotary drills.

The mine cars are 36-in. gauge and hold 1800 pounds. There is one 5½-ton storage battery locomotive, all the other haulage being by rope. The main haulage requires two relays. The main slope hoist (500 HP) with 5400-ft. rope handles a 20-car trip. The electric hoist at the shaft is 300 HP.

One car of rock is hoisted to every four to five cars of coal.

Comox Colliery

(No. 8 Mine)

This mine, located about 11 miles from Union Bay, was first opened in 1913 and closed shortly thereafter. It was reopened in 1916. There are two shafts, 1000 feet deep, bottomed in the No. 4 Seam which is 275 feet below the No. 2 Seam. No. 2 Seam is being worked extensively but No. 4 Seam is not worked due to the "troubled" conditions encountered when the entries were driven out from the shaft bottom some years ago.

A new slope will be put down from the No. 2 Seam on 30 per cent (18°) a distance of 845 feet to open the No. 4 Seam where a borehole has shown a good thickness of coal. By using this slope, it will be possible to explore the No. 4 Seam and continue hoisting coal from No. 2 level.

The seam is irregular and dirty. Cutting is generally done in a dirt band, the cuttings being gobbled.

All of the work is longwall advancing. Longwall advancing up the pitch is preferred by the management, although some of the walls are of necessity along the strike. The faces were well timbered, but no great weight was evident on

the walls. Chocks were built about every 20 feet with 4-ft. long timber, while along the roads 6-ft. filled chocks were built.

For a 300-ft. wall, the crew required in 24 hours is about as follows:

Cutter	1	
Helper	1	
Timberman	1	
Drillers	2	
Shot firer and fireboss	3	
Loaders	15	(9 on one shift 6 on the second)
Haulage	2	
Pan movers	3	
Muckers	4	
Chock builders	4	
Roadway, brushing	<u>12</u>	
Total	48	

With a wall 300 feet long, undercut 5 feet, and coal 3 feet thick, there should be 180 to 185 tons of coal. The production off these walls is less than 4 tons per man shift.

There are nine cutters with 6-ft. bars, three being overhead machines and six bottom cutters. Drilling is very hard, there being "nigger-heads" in the seam. Carboloy bits are used in drilling and tipped bits in cutting. Coal is loaded by hand with air-driven shaking conveyors on the walls. For 1944 the output per man shift was 2.64.

The track gauge is 36 inches and mine cars hold 2700 pounds, 36 inches high by 4 feet wide and 8 feet long.

The ventilation is good; if the gas exceeds 1 per cent, shooting is not permitted.

The coal is not clean. Twelve pickers are required on the tippie picking the 3-in. lump. With additional production from the lower seam, it may not be practical to pick the coal in one shift.

The main hoist is 800 HP, electric; there is a 600 HP hoist on the air shaft.

Tsable River

This prospect is located about 6 to 7 miles from Union Bay. Eight holes have been drilled in the immediate vicinity and these outline a coal area approximately 5000 by 8000 feet. At a distance of about 8000 feet from the portal, the coal reaches a depth of about 1600 feet.

The opening in the coal has advanced 200 feet. The work is being done on one shift with an advance of about 5 feet per day. The coal at the face is 6 to 7 feet and is said to be improving in appearance. It is firm and reasonably free from impurities but some pyrite is evident on the faces of pieces of coal from the top bench. No analyses were given.

There is a small compressor to run the jackhammer and small pump and small electric generator to charge the batteries of the cap lamps.

The engineers estimate the probable coal as follows:

No. 4 Seam	2 ft. 7 in.	750,000 tons
No. 3 Seam	3 ft. 4 in.	1,350,000 tons
No. 2 Seam	6 ft. 2 in.	3,600,000 tons

They also estimate there is 4,300,000 tons in the No. 2 Seam in the eastern (lower) portion of the field.

Officers of the company express the hope that a 1000 ton per day mine may be opened with a life of 12 to 15 years.

Auxiliary OperationsUnion Bay

This is the site of the large docks and coal-loading station of the Company, the washery serving the Cumberland mines, briquetting plant, shops, etc.

Most of the coal produced at Cumberland is shipped by water and may be loaded in barges or ships, or sold as bunker coal. At the washing plant extensive improvements are in progress and will be completed within 90 days, if the machinery is available.

The briquetting plant was operated only a short time and was shut down in 1941, due to the improved market for fine sizes and the shortage of men. The plant was run at 15 tons, but the press had a capacity of 30 tons. The plant is intact except for the press which was leased to Nordegg. About 7 per cent oil binder was used. The briquettes were sold for domestic purposes and it was stated that the briquetting of fine sizes could be operated at a profit.

The machine shop appeared to be well managed but much of the equipment is old.

Union Bay Washery

The following data on this plant have been supplied by the Engineering Department of the Canadian Collieries (Dunsmuir) Limited.

When alterations and installations have been completed, the plant will have a capacity of 200 T.P.H. input of raw screenings 6 in. by 0.

Screenings, 6 in. by 0, as received from the mines will be dumped into a track hopper from which they will be fed by a reciprocating plate feeder to the main belt conveyor. The main belt conveyor is 30 inches wide by 165 feet long and on an angle of 16°. The head pulley on the conveyor is of the magnetic type (Dings) which removes all tramp iron from the screenings. The screenings, after passing over the magnetic pulley will be fed to a 6-ft. by 14-ft. double-deck vibrating screen where they will be wet-screened to the following sizes: 6 by 1½ which will be fed to No. 1 Jig; 1½ by 3/16 fed to No. 2 Jig and 3/16 by 0 to five Masco washing tables. The products from No. 1 and No. 2 Jigs will then be flumed on to a balanced shaker screen where they will be dewatered and sized as follows for market, - Cobble, 6-in. by 3-in., No. 1 Nut, 3-in. by 1½-in., No. 2 Nut, 1½-in. by 7/8-in., Pea Coal, 7/8-in. by 3/16-in.; the Cobble and No. 1 Nut will be boom-loaded and the other sizes binned. The product from the tables or Washed

Smalls (3/16-in. by 0) will be flumed to a compartment at one end of the Settling Tank from which they will be elevated by a dewatering elevator to a bin in the Washery building.

The rejects from No. 1 Jig will be crushed through two stages of crushing to 7/8-in. maximum and delivered back into circuit to the main belt conveyor with the raw screenings to be rescreened and rewashed. The rejects from No. 2 Jig will be pumped to the refuse pile through approximately 1100 feet of 8-in. concrete pipe. The refuse from the tables will be flumed to the sump of the rock pump.

Fresh water is to be used for washing, but all fluming and pumping of refuse will be salt water. All the fresh water used in washing will be returned to the settling tank to be clarified and recirculated through the plant again through a 5000 G.P.M. circulating pump. The sprays, etc., used for wet screening will be fresh water taken from our plant main and will act as make-up water for what is lost during the process. The settling tank is of concrete construction, 110 ft. long by 10 ft. wide by 10 ft. deep and holds approximately 68,000 gallons. Both jigs are 4 ft. 6 in. Vissacs and will require approximately 2000 G.P.M. each, plus the amount used on the five Masco tables. The slurry or sludge which will be deposited on the bottom of the settling tank will be handled by a slow-moving scraper conveyor the full width of the tank and travelling the entire length and will scrape the material to a compartment at one end from where it will be elevated, dewatered, and binned.

The salt water used in connection with fluming and the pumping of refuse will be supplied by a single stage 1200 G.P.M. pump installed in a partly submerged concrete pump house situated under the approach to the coaling dock, and will pump through an 8-in. wood-stave pipe approximately 2500 feet long.

Products from the 200 T.P.H. Plant

Cobble Coal	6 in. by 3 in.
No. 1 Nut Coal	3 in. by $1\frac{1}{2}$ in.
No. 2 Nut Coal	$1\frac{1}{2}$ in. by $7/8$ in.
Pea Coal	$7/8$ in. by $3/16$ in.
Washed Smalls	$3/16$ in. by 0
Slurry or Sludge	

Nanaimo

At this location the Company maintains its general offices, local railway yards and docks, a central machine shop and a washery to prepare coal from the mines of the Nanaimo area.

Washery

Inasmuch as the coal tonnage from the Nanaimo area is expected to decline, there are no plans for modernizing the washery. The principal units in this plant include the following:

2 cone washers	for	plus $1/4$ in. coal
10 tables	for	minus $1/4$ in. coal

The raw coal, minus 3 in., is delivered to the washery in railroad cars and is dumped into a 20-ton bin. The raw coal is screened dry. The oversize coal with the fines that remain with the oversize is split and passed to two cones, in which the oversize is washed but the undersize that remains in the oversize is only partly washed.

Washed coal flows from the cones with water to the shaker screen. The screen has two plates and makes pea coal, No. 1 Nut, and No. 2 Nut. Minus $3/16$ in. is passed to a rectangular tank and thence to the tables.

Rock from the cones is dumped by slide gates to 5-ton cars. The undersize from the screen is conveyed to a trough where water is added and then flows to a 6-ft. diameter distributor. This has a cone in the center and eight openings. Raw coal flows by gravity to the tables. The tables make three-way separation, namely, washed fines, middlings, and refuse. Middlings are taken about 3 feet off the side at the end of the

table and 8 inches off the end. The rest of the coal from the side of the table is washed fines, and flows by gravity with water to the tank and elevator which lifts it to a bunker for loading into railroad cars. Rock from the tables is elevated and loaded into railroad cars.

The plus 1/4 in. raw coal delivered to the washery varies from 19 to 25 per cent ash and the minus 1/4 in. from 24 to 44 per cent ash.

The capacity of the washery is 55 tons per hour for No. 10 Mine coal, and 75 tons per hour for coal from other mines.

Hydraulic Power Plant

This plant has a capacity in excess of 10,000 HP and the upper hydraulic works have been installed to utilize the full flow of the river to more than double the capacity of the present plant.

The availability and the development of this water power is an important factor in providing electric power for the mines and auxiliary plants at a relatively low cost.

Program for the Vancouver Island Mines

In the submission by the Canadian Collieries (Dunsmuir) Limited the forecast of the life of the several operations from March 1945 is as follows:

Douglas Seam

No. 10 South Wellington Mine	2½ to 3 years
1944 production	283,761 tons

Wellington Seam

White Rapids Mine	5 years
Total tonnage	500,000 tons

Comox District

No. 5 Mine - operating at a loss	No future
1944 production	146,642 tons

No. 8 Mine	20 years
1944 production	230,452 tons

Tsable River

Possible life at 1000 tons per day	12 to 15 years
------------------------------------	----------------

It is evident from the foregoing that the outlook for the continuation of production from the existing mines is poor, except from No. 8 Mine in the Cumberland area.

The future of the field depends on the opening of new coal areas where the quality of the coal and the physical conditions of the seams will warrant the investment in new plants from which coal can be hauled to the existing washeries.

The plans of the officers of the Company are logical and sound and provide for

- (1) drilling in the Cumberland area to determine whether new mine openings are justified,
- (2) underground exploration of the Tsable River area,
- (3) continuation of mining at White Rapids and No. 10 Mine as long as possible, providing the operating losses are not too great (there apparently is no hope of developing any large mine in the Nanaimo area).

Incident to this program at Tsable River, there will be large-scale tests to determine the washability and marketability of this coal; this is vital before any extensive construction and development expenditures are made. In any event, the capital investment will have to be kept low as the life of this field is probably short.

The further development of No. 8 Mine at Cumberland, by the reopening of No. 4 Seam, holds the best prospects. If the coal is found workable there will be considerable tonnage available to the present plant.

The management has been enterprising in the development of underground mining practice and in the application of mining machinery to the difficult and variable conditions of the coal seams, the roof, and the floor. The use of mechanical loading devices is limited practically to narrow work and there has been little opportunity to use duckbills in rooms due to the roof, floor, and seam conditions. Air-driven shaking conveyors have been used effectively whenever possible.

The use of electricity underground has been restricted due to the gas that occurs, rather generally. In the deeper mines extensive application of electrical machinery has been considered inadvisable due to the possibility of outbursts of gas.

When new mines are opened, management will undoubtedly take full advantage of the latest improvements in machinery and mining practice.

CROWSNEST AREA

This area in British Columbia and the Crowsnest Area in Alberta are in Cretaceous rocks which cover an area of about 500 square miles. The coal measures of this field are described by M. McEvoy, Summary Report, Canadian Geological Survey, 1900, pp. 85A - 95A, and B. R. McKay, Michel Coal Area, 1933, Part B.

The coal measures, originally deposited over the whole of the area, have been eroded around the edges of the area, where the rocks are crumpled and folded, and also along some of the deeper valleys so that their actual area is about 230 square miles.

The area is approximately a triangle with its greatest length 35 miles, north and south, and its greatest width about 13 miles. The upturned western edge of the Cretaceous rocks forms a ridge or escarpment which is fairly uniform and rises 3500 to 4000 feet above the Elk River. About half-way up the slope the coal measures are found outcropping with dips 30° to 40° eastward.

The general attitude of the Cretaceous rocks is that of a wide, flat-bottomed basin, the beds being upturned at the north and south ends of the area, as well as at each side. On the south and west borders of the area, the upturning has been accomplished without much faulting of the coal measures and overlying beds, but the lower members of the series, consisting

of shales, have been badly crushed and folded.

Although in general the rocks have formed a flat-bottomed basin, there are many places where local faults occur. Some of these faults are of considerable dimensions and must be reckoned with in the problem of mining the coal systematically. The basin plunges southward at the rate of about 100 feet in 800 feet.

A section of the above-mentioned escarpment, measured about 3 miles north of Morrissey siding, showed 216 feet of coal in the total section of 4,736 feet. The greater part of the coal, 198 feet, occurs in a thickness of measures of 1847 feet. If the impure sections of the coal are deducted, as well as the smaller seams that may not be mined profitably, it is estimated that there is a total thickness of workable coal of at least 100 feet.

Toward the top of the geological section the beds consist largely of very hard conglomerate and gritty sandstone. The preservation of the coal measure is due in a great degree to the presence of these hard beds, which prevented erosion and by their great strength saved the more-yielding beds of the underlying coal measures from crushing and folding. The conglomerates and sandstones are false-bedded and are of irregular thickness, and individual beds cannot be expected to be continuous over very large areas.

Along the escarpment facing the Elk River, the coal seams outcrop at elevations of 1500 to 2000 feet above the river. The dips are uniformly to the east at angles of 20° to 40°. Going eastward these dips flatten out, until at a distance of about five miles from the Elk River the beds are almost horizontal. Toward the northeast, the dips are increased greatly and the successive beds are brought rapidly to the surface until the coal measures again appear.

In 1900 the total area of 230 square miles with a workable thickness of 100 feet was estimated to contain 22,595,200,000 long tons.

Crow's Nest Pass Coal Company, Limited

This company has been mining extensively in the Crows-nest Area for many years, the operations in the Fernie District having been started in 1897, and in the Michel District in 1899.

Up to 1942 ten mines had been operated in the Coal Creek Valley. The Elk River Colliery was started in 1942 and production began in November 1943; the principal tonnage from this area is now handled at this plant. At Michel two groups of mines have been in operation.

In both areas large modern cleaning plants have been erected. At Michel in addition to beehive coke ovens there is a modern by-product coking plant.

Coal Seams

There has been a large amount of coal mined from various seams since 1897 when the first mine was opened. In the Coal Creek area, 5 miles from Fernie, the seams opened were as follows:

- No. 1 Seam - Averaging about 20 feet in thickness
- No. 2 Seam - Averaging about 6 feet in thickness
- No. 5 Seam - Averaging about 12 feet in thickness
- No. B Seam - Averaging about 5 feet in thickness
- No. 4 Seam - Averaging about 40 feet in thickness

During the 45 years this area was productive, ten mines had been opened.

Later, at Michel, 24 miles north of Fernie, two groups of mines were opened; the coal seams being opened largely by cross-measure tunnels and adits. More than eight seams have been worked at various times, the seams dipping 15° to 30° and ranging from 4 to 30 feet in thickness. Slopes have been put down in some of the seams.

At a point 8 miles north of Fernie, two cross-cut tunnels were driven through the coal measures, intersecting nine seams from 4 to 22 feet thick, with a total thickness of 98 feet. There was a tenth thick seam but the thickness was not determined.

Following the closing of the mines in the Coal Creek area, the Elk River area has been developed by the Elk River Colliery of the Crow's Nest Pass Coal Company. This mine will open seams Nos. 4, 9, and 10, which are thick seams of friable bituminous coking coal. These beds lie at an inclination of 14° to 30° , the pitch increasing toward the outcrops. (W. C. Whittaker, Elk River Colliery, Trans. Canadian Institute of Mining and Metallurgy, Vol. XLVII, 1944, pp. 437 - 448). Roof conditions vary considerably from a tender top of thin shales interbedded with streaks of coal to strong, heavy shales, sandstones, and conglomerates. In addition to the above-mentioned seams, it is believed that eight other workable seams can be mined from the Elk River openings which are situated so that the coal can be prepared at the Elk River cleaning plant.

Mining Practice and Mechanization

Elk River

In the Elk River area the roof conditions in the various seams are somewhat the same and the same general system of mining will be installed in the several seams. The general plan is to drive a four-entry level-course, roadway system on which haulage will be at first by compressed-air locomotives and later by storage-battery locomotives.

At intervals of 1100 and 2200 feet, pairs of conveyor-belt inclines are driven from the main levels to the outcrops on the full rise of the seam where this does not exceed 18° . Where the pitch is greater, these conveyor entries are to be driven at appropriate angles to develop a suitable grade for the conveyors. At intervals of 300 feet, conveyor-belt roadways are driven across the pitch on either side of the inclines for distances up to 1000 feet, the grades being 5 to 10 per cent in favor of the loads. Splits are then driven to the rise and the coal is handled from these faces by shaker conveyors or chutes. The method of pillar extrac-

tion is either by wide rooms, where the coal is loaded by shakers and duckbills, or by modified longwall, the method depending on the natural conditions encountered.

All mining machines are driven by compressed-air. Duckbill places and longwalls are cut by chain-type undercutters, while other places are cut by radialax. Compressed-air picks are provided in all working places. While in some sections of the mines the coal is soft enough to be mined with airpicks, most of the coal is shot with permissible powder by certified shotfirers.

The Elk River Colliery has a present capacity of 1250 tons, but an ultimate capacity of 4000 tons.

Michel

This mine is entered by cross-measure tunnels which intersect the seams in a syncline.

On the west side of Michel Creek, work has been done in eight seams, all of which have been intersected on the Michel leg of the syncline by cross-measure tunnels driven at valley floor level. These tunnels have now crossed the basin of the syncline and have again intersected four of these seams on the far side of the syncline.

These seams, in the order of their intersection by the tunnels, are as follows:

No. 5 Seam	- 8 ft. thick intersected	240 ft. from portal
No. 4 Seam	- 12 ft. thick intersected	600 ft. from portal
Lower No. 3 Seam	- $6\frac{1}{2}$ ft. thick intersected	900 ft. from portal
Upper No. 3 Seam	- 12 ft. thick intersected	1540 ft. from portal
Upper No. 2 Seam	- 7 ft. thick intersected	1800 ft. from portal
Upper No. 1 Seam	- $11\frac{1}{2}$ ft. thick intersected	2700 ft. from portal
B Seam	- 6 ft. thick intersected	3800 ft. from portal
A Seam	- 22 ft. thick intersected	4400 ft. from portal

Nos. 5, 4, and 2 Seams have been prospected but not extensively worked. Upper and Lower No. 3 Seams have been worked extensively since 1902 on the Michel side of the Syncline and in the bottom of the basin. A small amount of development has been done at the end of the rock tunnels in Upper No. 2. No. 1 Seam has been operated extensively on the

Michel side and to a limited extent on the Sparwood side, but is not now in operation.

At present, only two seams are worked, namely A and B. A Seam measures 12 feet and lies 50 to 200 feet below the B Seam. On the east flank of the syncline the pitch is 14° , while on the west the pitch is as much as 40° . Seventy-five per cent of the output is hand-loaded onto conveyors and to a small extent directly into cars, while the balance is loaded by duckbills.

B Seam. Forty-five per cent of the daily tonnage comes from B which measures 5 feet to 5 feet 6 inches. Both modified longwall and room-and-pillar are in use. The longwall faces are adapted to meet local conditions. On a face 250 feet long, uncut 5 feet with air-driven machines, posts are set on 4 to 6 ft. centers. The roof is generally good and no packs are built. The coal is loaded onto shaking conveyors or chutes, the miners doing their own drilling. The practice is to drive 14-ft. rooms up the pitch on 90-ft. centers and then slab on one side until the total width of the place is 70 feet. The plan is to leave a 20-ft. pillar. The cutters are paid by the day and the loaders by the ton.

Where the pitch is 40° , it is proposed to use large scrapers, with scrapers approximately 3 feet wide, 4 feet long, and 40 inches high. Where the walls are advancing along the strike and the pitch is steep (over 25°), it is unsafe to have a large crew of men working, as the sliding and falling coal is a menace, particularly to the men working at the bottom of the wall.

It has been the experience at this mine that longwall retreating gives lower costs than longwall advancing.

In entry driving and in room work where the pitch is not severe, shaking conveyors with duckbills have been used successfully.

A Seam. There is no longwall work in the A Seam.

The general practice when the pitch is under 25° is to drive rooms about 18 feet wide up the pitch using a duckbill on the advance, the pillars being taken out on the retreat by slabbing and without drilling and shooting. Where the coal is high and the pitch exceeds 25° , the men use airpicks on the bench in the advance, working as much coal onto the shaking conveyor as possible. Some shovelling is necessary where the duckbill is not used. Where the roof is poor, heavy cross-bars must be set on posts.

Experiments have been carried on with multiple rooms working to a conveyor. In a proposed layout where the pitch is 38° to 40° , three rooms will be turned up the pitch on 35-ft. centers in the top coal, 14 feet wide and 8 feet high. Rooms will be turned each side on 35-ft. centers on the strike and driven to a depth of 300 feet, using duckbills. The coal will be discharged into a chute in the middle room of the three rise rooms. The openings turned up the pitch will be driven with airpicks. Narrow work will be driven with airpicks and shaking conveyors.

A summary prepared by the Crow's Nest Pass Coal Company, Ltd., reviews various phases of underground operation and mechanization, as follows:

	<u>Michel</u>	<u>Elk River</u>	<u>Both Collieries</u>
Average Daily Production			
Short tons, clean coal	2650	1250	3900
1. Cutting			
(a) Airpicks provided in all working places	100%	100%	100%
(b) Radial cutters, short-wall and Longwall machines	54	36	49
2. Power Drilling	60	42	54
3. Blasting	72	42	62
4. Mechanical Loading	21	18	20
5. Transportation by Shaker Conveyor from Coal Face to Entry	92	48	78
6. Transportation from Main Entries to Preparation Plant by Endless and other Rope Haulage, Locomotives, and Conveyor Belts	100	100	100

Bumps and Blowouts

Bumps have occurred frequently in the Crowsnest Area and have received most careful attention from operators, mining engineers, and the Mines Department. Bumps have been a great drawback in the operation of the mines and are responsible for the very extensive development and the small percentage of extraction.

Mr. W. C. Whittaker made the following statement covering the experience of the Crowsnest Company:

"While this bump problem has been the subject of study for many years, no solution as to their elimination in these mines has been found. It is recognized, however, that there are a number of factors contributing to this condition. These factors are principally as follows:

1. Heavy cover averaging 1800 to 2000 feet, together with the presence of massive and elastic beds of conglomerates and sandstone over the seams.

2. An almost complete absence of major faulting which has resulted in the retention of tectonic stresses which would otherwise have been dissipated to a large extent as on the north side of the valley where faulting has been prevalent.

3. The opening of these mines some 10,000 feet to the dip of the outcrop and close to the basin of the syncline where the retained stresses were greatest."

There were numerous serious outbursts or blowouts of gas. At Morrissey Mine in the No. 1 Seam two blowouts resulted in the loss of eighteen lives. The mine was closed on account of the hazard from such blowouts. Later efforts were made to open a lower seam, but after two years operation there was a recurrence of these outbursts and the mine was then closed permanently. (Robert Strachan, The Crow's Nest Pass Coalfield, Trans. Canadian Institute, 1920, Vol. XXIII, pp. 276 - 290).

In later years gas blowouts have been experienced only in No. 10 Seam, and practically all of these in the dip workings of No. 1 East Mine. Since mining operations have been discontinued in this area, no further blowouts have occurred. Mr. W. C. Whittaker said,

"These blowouts were characterized by a sudden and violent ejection of a large volume of fine coal from the face accompanied by the release of great quantities of gas, including methane, ethane, and carbon dioxide and resulting in considerable loss of life, as well as occasioning very considerable damage in the immediate neighborhood."

Cleaning and Coking Plants

Michel. At both mines of the Crow's Nest Pass Coal Company cleaning plants have been installed.

At Michel two large pneumatic separators were installed in 1932, to clean the 1 1/4 in. by 0 sizes. A wet washing plant was added in 1936. This latter plant contains three Vissac jigs and dryers which handle the 7 by 1/8 inch sizes. In 1937 these facilities were destroyed by fire. The present plant, of steel and reinforced-concrete construction, was completed in September, 1938. It consists of a screening section, three Vissac jigs, and four Vissac heat dryers which treat the 7 by 1/8 in. sizes, and one section of twelve pneumatic separators which clean the 1/8 in. by 0 sizes.

The plant has a capacity of 350 tons per hour and is equipped with eight loading tracks, four boom-loaders, two box-car loaders, and slack storage bins of 2400 tons capacity. There is an oil-spray system for dust-proofing run-of-mine cobble, stoker, and slack sizes.

In 1938 a battery of ten Curran-Knowles By-Product ovens were installed, and in 1942 a second battery of ovens were placed in service. The capacity of the coking plant is now 220 tons of coal per day. Some beehive ovens are in service and the daily output of coke is 250 tons.

Elk River. The modern cleaning plant at this mine was completed in November, 1943. This plant was described by W. C. Whittaker in Trans. Canadian Institute of Mining and Metallurgy, 1944, Vol. XLVII, pp. 437 - 448).

Coal is delivered to the plant by belt conveyor from No. 4 rotary dump and from No. 9 Mine by means of retarding

conveyors. These conveyors have a rated capacity of 350 tons per hour.

The raw-coal plant consists of a scalping screen, picking table, McNally-Pittsburgh pickbreaker, 500-ton storage bin, and a system of 42-in. belt conveyors. Raw coal is conveyed directly into the preparation plant except for shut-downs, when it is diverted to the storage bin.

The washing plant building is a steel and concrete structure with panels of interlocking tile. The essential features of the plant are the screening section, three Vissac jigs, two Vissac dryers, together with distributing and blending conveyors, and railway loading facilities, including box-car loaders, loading booms, etc. There are seven loading tracks.

The sludge from the settling tank for purifying the wash water is dried and used in the heating plant or dryer furnaces, or is re-mixed in part with the clean coal. The fines in the effluent together with the sludge-tank overflow is piped to a settling pond from which it may be reclaimed later.

An oil-spraying system has been installed for dust-proofing commercial coal.

Gov. Doc
Can
Com
c

Canada, Coal
- Minutes - 7

63

ROYAL COMMISSION ON COAL

OTTAWA, Ont.

April, 1946

VOLUME LXIII



Witness

Pages

K. J. Morrison 5804 - 5906

EXHIBITS

No.

Page

- 283 - Corporate History and Summary of
Operating Experience, Eastern
Collieries of Bienfait Limited,
Estevan, Sask. 5805
- 284 - Corporate History and Summary of
Operating Experience, Manitoba and
Saskatchewan Coal Company Limited,
Bienfait and Taylorton, Sask. 5808
- 285 - Corporate History and Summary of
Operating Experience, Roche Percee
Coal Mining Company Limited,
Roche Percee, Sask. 5812
- 286 - Corporate History and Summary of
Operating Experience, Western
Dominion Coal Mines Limited,
Taylorton, Sask. 5814
- 287 - Corporate History and Summary of
Operating Experience, Crow's Nest
Pass Coal Company Limited,
Ferne, B. C. 5818
- 288 - Corporate History and Summary of
Operating Experience, Hillcrest
Mohawk Collieries Limited,
Bellevue, Alberta 5824
- 289 - Corporate History and Summary of
Operating Experience, International
Coal and Coke Company Limited,
Coleman, Alberta 5827

EXHIBITS (Continued)

<u>No.</u>	<u>Page</u>
290 - Corporate History and Summary of Operating Experience, McGillivray Creek Coal and Coke Company Ltd., Coleman, Alberta	5833
291 - Corporate History and Summary of Operating Experience, West Canadian Collieries, Limited, Blairmore, Alta. ..	5838
292 - Corporate History and Summary of Operating Experience, Brazeau Collieries Limited, Nordegg, Alta.	5843
293 - Corporate History and Summary of Operating Experience, Cadomin Coal Company Limited, Cadomin, Alberta	5849
294 - Corporate History and Summary of Operating Experience, The Canmore Mines Limited, Canmore, Alberta	5854
295 - Corporate History and Summary of Operating Experience, Luscar Collieries Limited, Luscar, Alta.	5861
296 - Corporate History and Summary of Operating Experience, Mountain Park Collieries Limited, Mountain Park, Alta.	5865
297 - Corporate History and Summary of Operating Experience, Banner Coals Limited, Kent Coal Company Limited, Crown Coal Company Limited, Edmonton, Alberta	5871
298 - Corporate History and Summary of Operating Experience, Beverly Coal Company Limited, Edmonton, Alta.	5876
299 - Corporate History and Summary of Operating Experience, Black Diamond Coal Company Limited and The Great West Coal Company Limited	5880
300 - Corporate History and Summary of Operating Experience, Edmonton Collieries Limited, Edmonton, Alta.	5885
301 - Corporate History and Summary of Operating Experience, Lakeside Coals Limited, Edmonton, Alta.	5887
302 - Corporate History and Summary of Operating Experience, Red Flame Coal Company Limited, Camrose, Alta.	5892
303 - Corporate History and Summary of Operating Experience, Atlas Coal Company Limited and Regal Coal Com- pany Limited, Drumheller, Alta.	5894

ROYAL COMMISSION ON COAL

Ottawa, Ont.,
April, 1946.

K. J. MORRISON called to stand. Examined by Mr. Frawley.

Q Mr. Morrison, you were sworn at Sydney and you are still under oath. You have made some investigation into the financial affairs of the operations in Western Canada?

A Yes.

Q And you have some reports to introduce now as a result of that work that you did?

A When you say that I have made an investigation, we have been supplied with the material from the various operating companies as a result of the questionnaire sent to them.

Q By whom?

A By Mr. Howland, the secretary of the Commission: and we have not examined the books of account of these various companies. We have merely put them into form so that the results of the past 15 years, where they were applicable would all be gathered together, and we have prepared a short summary of the corporate history and the operating experience of that company, and also have supporting that the financial statements of the company, which in the case of the Nova Scotia companies was marked as an exhibit for identification.

Q You have made such studies as you have just indicated in the fields in Saskatchewan, Alberta and British Columbia?

A That is correct.

Q Will you proceed to deal with the operators of Saskatchewan?

A I am submitting first the corporate history and summary of operating experience of the Eastern Collieries of Bienfait, Limited, at Estevan, Saskatchewan. That will be Exhibit 283 and it will be supported by Exhibit E for identification.

Mr. Morrison presents -

EXHIBIT 283 - Eastern Collieries of Bienfait Limited,
Estevan, Sask. - Corporate History and
Summary of Operating Experience.

Prior to May 1st of 1936 this company had an authorized capital of \$400,000.00, of which \$278,155.00 was issued and outstanding. On that date the company was reorganized and two-thirds of its share capital cancelled. The Capital Assets were written down in the following manner to take up the reduction of Capital Stock from \$278,155.00 to \$92,719.00, or \$185,436.00:

Reduction in value of leases and options	\$164,200.00
Organization expense written off	2,300.00
Commission on sale of stock written off	15,312.00
Reduction in deficit account	<u>3,624.00</u>
	<u>\$185,436.00</u>

Loans outstanding to directors, under the plan of reorganization, were to be liquidated by the issuance of preference shares. As at 30th April, 1944, loans of \$50,110.00 are still shown as a liability, and no preference shares are shown on the Balance Sheet.

The property from 1936 to April 1st, 1939, was operated as a deep seam mine with extensive underground workings. A disastrous fire on the latter date destroyed surface buildings and shafts beyond repair. The company then discontinued underground development and commenced stripping operations with production being obtained about 1st December, 1939.

The period covered by this report is for the stripping operations from 1939 to 1944.

FINANCIAL POSITION - 1944Assets

Net Property Value	\$ 112,693.65
Deferred	1,136.55
Net Current Position	<u>- 408.70</u>
	<u>\$ 113,421.50</u>

Liabilities

Share Capital	\$ 92,719.00
Directors' Loans	50,110.00
Deficit	<u>- 29,407.50</u>
	<u>\$ 113,421.50</u>

Included in the above net current position are loans from the Emergency Fuel Board of \$17,867.85.

Eastern Collieries did not receive any production subsidies from the Emergency Fuel Board until 1945 in respect of the year ending April 30th, 1944. The amount for that year was established at \$10,790.55, so that the loss shown of \$6,887.66 would be converted into a profit of \$3,902.89 after inclusion of the subsidy.

OPERATING RESULTS

This Company has suffered losses in all years from 1940 to 1944 as shown below:

1940 Loss	\$ 7,826.81
1941 Loss	1,582.11
1942 Loss	2,405.33
1943 Loss	5,650.66
1944 Loss	<u>6,887.66</u>
Total Loss	<u>\$24,352.57</u>

A summarized per ton profit and loss account is shown below:-

	<u>Sales</u>	<u>Mining Costs</u>	<u>Selling Expense</u>	<u>Adm. Expense</u>	<u>Sundry Revenue</u>	<u>Loss</u>
1940	\$ 1.305	\$ 1.317	\$.137	\$.229	\$.004	\$ - .374
1941	1.218	1.050	.120	.079	.002	- .029
1942	1.208	1.082	.111	.058	.009	- .034
1943	1.363	1.246	.125	.068	.002	- .074
1944	1.494	1.355	.140	.078	.001	- .078

A further analysis of the mining costs is tabulated in the per ton summary following:

	<u>Wages</u>	<u>Material</u>	<u>Other Charges</u>	<u>Depm.</u>	<u>Depletion</u>	<u>Develop-ment</u>	<u>Total</u>
1940	\$.817	\$.096	\$.324	\$.045	\$.032	\$.003	\$ 1.317
1941	.550	.095	.224	.130	.030	.021	1.050
1942	.553	.110	.273	.100	.031	.015	1.082
1943	.696	.078	.251	.130	.062	.029	1.246
1944	.700	.148	.263	.157	.062	.025	1.355

A summary of production, shifts worked and production in tons per man-day is as follows:

	<u>Production</u>	<u>Shifts</u>	<u>Tons per man-day</u>
1940	22.195	3,306	6.7
1941	56,290	5,344	10.5
1942	74,178	7,053	10.5
1943	79,479	7,864	10.
1944	<u>92,167</u>	<u>6,531</u>	<u>14</u>
	324,309	30,098	10.7

The Company's coal is sold to retail dealers and industrial consumers with the tonnages as follows:-

	<u>Retail Dealers</u>	<u>Industrial Consumers</u>
1940	5,776	15,119
1941	20,218	34,572
1942	15,729	55,259
1943	28,300	48,129
1944	<u>35,867</u>	<u>52,705</u>
	<u>105,960</u>	<u>205,784</u>

Mr. Morrison presented -

EXHIBIT 284 - Manitoba and Saskatchewan Coal
Company Limited, Bienfait and
Taylorton, Sask. -Corporate
History and Summary of Operating
Experience.

(Supported by Exhibit "F" for identification)

FINANCIAL POSITION - 1944

Assets

Net Property Values	\$ 949,824.68
Deferred	17,138.92
Net Current Position	<u>202,705.41</u>
	<u>\$1,169,669.01</u>

Liabilities

Share Capital	\$1,000,000.00
Funded Debt at $4\frac{1}{2}\%$	118,020.00
Surplus	<u>51,649.01</u>
	<u>\$1,169,669.01</u>

From 1931 to 1944 the value of the fixed assets has increased from \$1,423,995.02 to \$1,608,606.17, or a net increase of \$184,611.15.

First mortgage bonds (\$201,500.00 at 1931) bearing interest at 6% were reduced by annual instalments to \$180,000.00 in 1937. During 1938 a new issue of debentures bearing $4\frac{1}{2}\%$ interest was made. Of this original issue of \$150,000.00 there was outstanding at the close of the 1944 fiscal period \$118,020.00.

Dividends have been paid in 1941 - $3/4\%$, 1942 - $1-1/8\%$, 1943 - $3/4\%$ and 1944 $1-1/2\%$ for a total amount of \$41,250.00.

A subsidy has been entered in the accounts for 1944 of \$191,050.69 which was subsequently finalized by the Board at \$190,667.56.

A summary of the results of the Company's operations
1931 to 1944 is shown below:

	<u>Before</u> <u>Income Tax</u>	<u>After</u> <u>Income Tax</u>	<u>Taxable</u> <u>Income</u>
1931	\$ 7,098.10	\$ 6,443.36	\$ -3,449.71
1932	-9,901.77	-9,901.77	-21,098.39
1933	-14,302.04	-14,302.04	-14,302.04
1934	-16,633.02	-16,633.02	-16,633.02
1935	- 3,931.59	- 3,931.59	- 3,931.59
1936	47,558.78	38,403.71	47,558.78
1937	-25,358.09	-25,358.09	-25,358.09
1938	-10,944.79	-10,944.79	-10,944.79
1939	964.25	764.25	964.25
1940	-25,933.63	-25,933.63	-25,933.63
1941	22,879.37	14,076.14	22,879.37
1942	27,128.07	16,138.07	27,128.07
1943	13,985.55	5,035.55	13,985.55
1944	<u>22,362.40</u>	<u>13,562.40</u>	22,412.40
	<u>\$ 34,971.59</u>	<u>\$ -12,731.45</u>	

The 1944 profit includes subsidy claimed of \$191,050.69.

Standard profits of this Company are shown at \$32,000.00.

A per ton analysis of the Profit and Loss account is summarized in the following tabulation:-

	<u>Sales</u>	<u>Mining Cost</u>	<u>Adm. & Selling Exp.</u>	<u>Bond Interest</u>	<u>Sundry Revenue</u>	<u>Profit or Loss Before Taxes</u>
1931	\$ 1.666	\$ 1.266	\$.318	\$.137	\$.123	\$.068
1932	1.455	1.275	.223	.110	.075	-.078
1933	1.484	1.268	.282	.110	.061	-.115
1934	1.462	1.246	.297	.108	.054	-.135
1935	1.421	1.126	.281	.097	.053	-.030
1936	1.551	1.065	.257	.054	.038	.213
1937	1.475	1.356	.264	.072	.058	-.159
1938	1.386	1.245	.208	.046	.060	-.053
1939	1.314	1.128	.210	.037	.066	.005
1940	1.277	1.216	.252	.039	.095	-.135
1941	1.283	1.060	.201	.029	.083	.076
1942	1.242	1.020	.197	.023	.080	.082
1943	1.545	1.354	.209	.032	.102	.052
1944	1.398	1.665	.158	.036	.057	.053

The 1944 profit is after crediting subsidy of \$.457 per ton.

A further analysis of the mining costs is undernoted, based on tons sold:

	<u>Labor</u>	<u>Material</u>	<u>Power</u>	<u>Other Charges</u>	<u>Depn.</u>	<u>Depletion</u>	<u>Total</u>
1931	\$.796	\$.056	\$.068	\$.213	\$.133	\$	\$ 1.266
1932	.753	.046	.117	.238	.121		1.275
1933	.626	.236	.034	.129	.139	.104	1.268
1934	.582	.216	.098	.123	.121	.106	1.246
1935	.511	.146	.107	.150	.110	.102	1.126
1936	.510	.185	.084	.106	.073	.107	1.065
1937	.607	.243	.108	.193	.095	.110	1.356
1938	.588	.195	.098	.179	.076	.109	1.245
1939	.523	.141	.092	.182	.075	.115	1.128
1940	.583	.168	.085	.177	.088	.115	1.216
1941	.516	.173	.065	.136	.058	.112	1.060
1942	.536	.152	.069	.101	.054	.108	1.020
1943	.758	.193	.090	.149	.070	.094	1.354
1944	1.035	.244	.066	.166	.048	.106	1.665

A summary of the production, shifts and tons per man-day is as follows:

	<u>Production</u>	<u>Shifts</u>	<u>Tons per Man-Day</u>
1931	105,478	22,470	4.69
1932	126,813	21,733	5.83
1933	129,931	22,440	5.79
1934	131,314	20,507	6.40
1935	134,361	20,973	6.41
1936	238,778	36,052	6.62
1937	176,029	20,591	5.75
1938	225,403	38,661	5.35
1939	242,363	33,892	6.19
1940	221,145	31,732	6.96
1941	336,339	41,293	8.15
1942	352,454	43,351	8.13
1943	275,413	38,426	7.05
1944	<u>442,538</u>	<u>46,012</u>	<u>9.09</u>
	3,138,359	448,133	7.00

RECAPITULATION

Using the representative years of 1931, 1935, 1939 and 1944, certain features of the Company's operations are shown below:-

	<u>1931</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Net Property Value	\$1,265,517.00	\$1,206,535.00	\$1,080,232.00	\$ 949,825.00
Net Current Position	23,258.26	34,062.98	106,452.18	202,705.41
Share Capital	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00
Funded Debt	201,500.00	201,500.00	145,254.00	118,020.00
Surplus	17,268.60	-27,618.55	56,843.45	51,649.01
Operating Profit or Loss	7,098.10	-3,931.59	964.25	22,362.40
Production - Tonnage	105,478	134,361	242,363	442,538
" - in tons per Man-Day	4.69	6.41	6.19	9.09
Average Selling Price - Per Ton	\$ 1.666	1.421	1.314	1.398
Total Cost per ton (Before bond interest)	1.584	1.407	1.338	1.823
Labor Cost	\$.796	.511	.523	1.035

Mr. Morrison presented -

EXHIBIT 285 - The Roche Percee Coal Mining Company,
Limited, Roche Percee, Sask. -
Corporate History and Summary of
Operating Experience
(Supported by Exhibit "G" for identification).

The Roche Percee Company, a wholly owned subsidiary of the Winnipeg Supply and Fuel Company Limited, commenced its operations during the latter part of 1939, with a capital of \$9,000.00, which was subsequently increased to \$20,000.00.

FINANCIAL POSITION - 1944

Assets

Net Property Values	\$16,595.08
Deferred	747.94
Net Current Position	<u>-22,779.01</u>
	<u><u>\$ -5,435.99</u></u>

Liabilities

Share Capital	\$20,000.00
Emergency Fuel Board Advance	11,750.00
Deficit	<u>-37,185.99</u>
	<u><u>\$ -5,435.99</u></u>

After the close of the Company's fiscal period the Emergency Fuel Board determined the subsidy for 1944 at \$21,050.98, which was paid less the advance shown above. The properties are shown at book value, and are subject to a fire loss claim. To finance the Company's operations advances were made by the Winnipeg Supply and Fuel Company Limited of \$34,030.49.

OPERATING RESULTS

After providing depletion at 10¢ per ton for the years 1942, 1943 and 1944, the Company has sustained losses as follows:

1940 Loss	\$ 2,539.80
1941 Loss	751.90
1942 Loss	4,084.71
1943 Loss	2,702.11
1944 Loss \$27,059.30 Less subsidy \$21,050.98	<u>6,008.32</u>
	<u><u>\$ 16,086.84</u></u>

A per ton analysis of the profit and loss account is shown hereunder:

	<u>Sales After Commissions</u>	<u>Stripping Costs</u>	<u>Adm. & Overhead</u>	<u>Loss</u>
1940	\$ 1.0867	\$ 1.0665	\$.1318	\$ -.1116
1941	1.1436	1.0781	.0817	-.0162
1942	1.1252	1.0963	.0773	-.0484
1943	1.2256	1.1744	.0748	-.0236
1944	1.2949	1.4702	.0804	-.2557

The subsidy received in respect of the year 1944 of \$.1990 per ton would reduce the above loss to \$.0567 per ton.

A further analysis of the stripping costs is shown below:

	<u>Stripping</u>	<u>Minine</u>	<u>Hauline</u>	<u>Tipple</u>	<u>Depn.</u>	<u>Depletion</u>	<u>Other Charges</u>	<u>Total</u>
1940	\$.2235	\$.1682	\$.2894	\$.2006	\$.0317	\$	\$.1531	\$1.0665
1941	.3584	.1814	.2240	.1338	.0316		.1489	1.0781
1942	.3102	.1388	.2405	.1150	.0773	.1000	.1145	1.0963
1943	.3895	.1606	.1774	.1093	.0727	.1000	.1649	1.1744
1944	.6780	.1110	.1834	.0944	.0970	.1000	.2064	1.4702

The production, shifts and production per man-day is shown below:

	<u>Production</u>	<u>Shifts</u>	<u>Production per Man-Day</u>
1940	22,741	2,366	9.61
1941	46,513	2,767	16.80
1942	84,384	3,137	26.89
1943	114,380	4,200	27.
1944	<u>105,821</u>	4,945	21.4
	<u>373,839</u>		

Mr. Morrison presented -

EXHIBIT 286 - Financial Statements 1930 - 1944,
Western Dominion Coal Mines Limited,
Taylorton, Sask. - Corporate History
and Summary of Operating Experience

(Supported by Exhibit "H" for identification).

Western Dominion was organized in 1936 with a capital stock issued and paid in cash of \$48,000.00.

In March, 1939, the Company was re-organized and took over the properties of the Truax-Traer Coal Company, Bienfait Mines Limited, and coal rights owned by the Great West Coal Company Limited.

Additional capital stock was then issued, the consideration for which was the transfer of properties.

These were issued as follows:

	<u>Common</u>	<u>6% Cum. Preferred</u>
Traux-Traer Coal Co. (Book Value of Properties \$486,673.64)	\$200,000.00	\$250,000.00
Bienfait Mines Ltd., (Book Value)	42,050.27	69,500.00
Great West Coal Co. Ltd.	109,949.73	180,500.00
Already issued as above (Cash)	<u>48,000.00</u>	
Total	<u>\$ 400,000.00</u>	<u>\$ 500,000.00</u>

The present shareholders are:

Traux-Traer Coal Co., Chicago	\$ 200,000.00	\$ 250,000.00
Great West Coal Co. Ltd., Winnipeg	<u>200,000.00</u>	<u>250,000.00</u>
	<u>\$ 400,000.00</u>	<u>\$ 500,000.00</u>

FINANCIAL POSITION - 1945Assets

Net Property Values	\$ 526,509.59
Deferred	15,058.88
Net Current Position including investments	<u>523,524.00</u>
	<u><u>\$1,065,092.47</u></u>

Liabilities

Share Capital	\$ 900,000.00
Surplus	106,999.37
Non-current Liabilities	<u>58,093.10</u>
	<u><u>\$1,065,092.47</u></u>

The above non-current liabilities include a loan from the Dominion Government of \$33,343.56.

OPERATING RESULTS

After incorporating various adjustments as shown by the Surplus Account the results are as follows:-

	<u>Profit or Loss</u>		<u>Taxable</u>
	<u>Before Income Tax</u>	<u>After Income Tax</u>	<u>Income</u>
1940	\$ -15,949.31	\$ -15,949.31	\$ -18,409.31
1941	5,846.55	4,683.97	6,252.26
1942	29,366.16	22,905.60	24,643.11
1943	40,717.52	36,234.49	35,428.09
1944	71,242.86	42,492.86	70,746.14
1945	<u>-1,147.71</u>	<u>-1,147.71</u>	
	<u><u>\$ 130,076.07</u></u>	<u><u>\$ 89,219.90</u></u>	

The standard profit as determined by the Board of Referees is \$75,000.00.

Western Dominion has not received production subsidies from the Emergency Fuel Board, but a claim of \$30,847.44 has been made in respect of the year 1943, which amount is not included in any figures submitted herewith.

A summary of per ton of the operating results follows, before income tax, and to include surplus adjustments:

	<u>Stripping Coal</u>			<u>Mined Coal</u>			<u>Combined</u>		
	<u>Sales</u>	<u>Costs</u>	<u>Profit</u>	<u>Sales</u>	<u>Costs</u>	<u>Profit</u>	<u>Sales</u>	<u>Costs</u>	<u>Profit</u>
1940	\$ 1.092	\$.663	\$.429	\$ 1.092	\$1.202	\$-.110	\$1.092	\$.751	\$.341
1941	1.062	.646	.416	1.293	1.151	.142	1.096	.719	.377
1942	1.090	.606	.484	1.374	2.091	-.717	1.115	.734	.381
1943	1.155	.620	.535	1.352	1.893	-.541	1.188	.835	.353
1944	1.261	.650	.611	1.485	1.590	-.105	1.312	.865	.447
1945	1.285	.759	.526	1.451	1.618	-.167	1.325	.966	.359

	<u>Gross Profit Forward</u>	<u>Depn.</u>	<u>Depletion</u>	<u>Adm. & Other Charges</u>	<u>Sundry Revenue</u>	<u>Profit or Loss Before Taxes</u>
1940	\$.341	\$.165	\$.100	\$.128	\$.018	\$ -.034
1941	.377	.173	.100	.105	.013	.012
1942	.381	.150	.100	.099	.014	.046
1943	.353	.187	.100	.075	.072	.063
1944	.447	.230	.100	.072	.035	.080
1945	.359	.192	.100	.083	.014	-.002

A further analysis of stripping and mining costs is shown below:

Stripping Costs

	<u>Stripping</u>	<u>Loading</u>	<u>Truckin_e</u>	<u>Tipple Railroad, Etc.</u>	<u>Inventory Adj.</u>	<u>Total</u>
1940	\$.220	\$.069	\$.057	\$.325	\$ -.008	\$.663
1941	.228	.078	.055	.315	-.030	.646
1942	.174	.064	.046	.299	.023	.606
1943	.204	.080	.064	.268	.004	.620
1944	.202	.089	.087	.282	-.010	.650
1945	.192	.097	.111	.357	.002	.759

Mining Costs

	<u>Mining</u>	<u>Transportation</u>	<u>General</u>	<u>Surface</u>	<u>Tipple Railroad Etc.</u>	<u>Total</u>
1940 - Taylorton	\$.388	\$.166	\$.216	\$.165	\$.489	\$1.424
- Bienfait	.307	.369	.134	.065	.233	1.108
- Combined						1.202
1941 - Taylorton	.461	.151	.087	.099	.315	1.113
- Combined						1.151
1942	.794	.595	.256	.192	.254	2.091
1943	.632	.527	.295	.145	.294	1.893
1944	.388	.547	.226	.124	.305	1.590
1945	.442	.430	.212	.137	.397	1.618

A summary of the production, shifts and production per man-day is as follows:

	<u>Production</u>	<u>Shifts</u>	<u>Production Per Man-Day</u>
1941	521,499	54,055	9.64
1942	640,025	60,219	10.62
1943	647,275	65,131	9.94
1944	889,749	74,898	11.87
1945	<u>718,870</u>	58,507	12.28
	<u><u>3,417,418</u></u>		

Mr. Morrison presented -

EXHIBIT 287 - Financial Statements 1930 - 1944,
Crow's Nest Pass Coal Company Limited,
Fernie, B.C. - Corporate History and
Summary of Operating Experience.
(Supported by Exhibit "I" for identification)

Crow's Nest Pass Coal Company Limited was formed in 1897, issuing to the Kootenay Coal Company for property and coal privileges stock having a par value of \$1,500,000.00. Share capital of \$2,227,600.00 was sold for cash. In 1908 a bonus stock dividend was declared and distributed of \$2,485,066.66, bringing the share capital to \$6,212,666.66. The stock dividend was comprised of the balance of the surplus account as at that time of \$343,816.66, together with premium collected and held in reserve on the shares sold for cash of \$2,141,250.00.

Collieries are operated at Michel and Coal Creek (Elk River) together with a coke plant operating beehive and by-product ovens.

At the end of 1944 the gross value of properties stood at \$8,229,572.30, as compared with \$5,462,100.43 in 1930, or an increase of \$2,767,471.87.

During the period 1931 to 1944 depreciation totalling \$1,703,187.89 and depletion of \$901,689.87 has been charged to operations.

Dividends have been paid to shareholders during the period under review of \$3,602,842.50, of which \$1,340,632.20 is a distribution of reserves. This has the effect of producing a debit balance in the appropriation account.

Summary of financial position as of 31st December, 1944.

Assets

Net Properties	\$ 3,792,247.38
Deferred	39,548.16
Net Current Position, including investments	<u>1,580,310.48</u>
	<u>\$ 5,412,106.02</u>

Liabilities

Share Capital	\$ 6,212,666.66
<u>Less</u> Deficit arising through the payment of reserves through dividends	<u>800,560.64</u>
	<u>\$ 5,412,106.02</u>

Operating Results

The net profit of the Company for the years 1930 to 1944.
before provision for income tax, is stated below:

	<u>Before Income Tax</u>	<u>After Income Tax</u>
1930	\$ 177,492.39	\$ 166,881.86
1931	29,134.87	27,447.26
1932	37,613.31	39,469.17
1933	106,366.52	105,874.01
1934	261,738.79	239,845.33
1935	242,432.65	215,441.14
1936	321,709.43	278,130.16
1937	148,591.84	109,794.77
1938	112,438.33	89,734.63
1939	199,674.78	164,132.07
1940	453,996.62	307,162.98
1941	660,831.63	287,233.74
1942	691,567.61	308,179.49
1943	393,428.30	246,468.39
1944	<u>261,077.94</u>	<u>158,664.89</u>
	<u>\$ 4,098,095.01</u>	<u>\$ 2,744,459.89</u>

The profit or loss per ton on operations is tabulated hereunder:

	<u>C O A L</u>			<u>C O K E</u>			<u>By-Products Profit</u>
	<u>Sales</u>	<u>Cost</u>	<u>Profit or Loss</u>	<u>Sales</u>	<u>Cost</u>	<u>Profit</u>	
1931	\$3.586	\$3.751	\$ -.165	\$3.984	\$3.659	\$.325	\$
1932	3.522	3.665	-.143	4.490	4.221	.269	
1933	3.292	3.210	.082	7.354	5.653	1.701	
1934	3.086	2.693	.393	6.204	4.547	1.657	
1935	2.896	2.565	.331	5.932	4.455	1.477	
1936	2.789	2.403	.386	5.641	4.141	1.500	
1937	2.734	2.584	.150	5.764	4.705	1.059	
1938	2.812	2.912	-.100	5.774	5.277	.497	
1939	2.743	2.598	.145	5.712	4.969	.743	1.750
1940	2.712	2.350	.362	5.820	4.636	1.184	1.973
1941	2.778	2.371	.407	6.066	4.640	1.426	2.493
1942	2.891	2.550	.341	6.578	4.965	1.623	2.602
1943	3.130	2.944	.186	6.832	6.039	.793	2.066
1944	3.703	3.714	-.011	8.149	7.184	.965	2.724

The above profit or loss is before income tax, and does not include sundry revenues.

SALES

A summary of the tonnage sold or consumed is stated below:

	<u>Railways</u>	<u>Commercial</u>	<u>Company Consumption</u>	<u>Coke Transfer</u>	<u>Total</u>
1931	139,200	182,740	20,569	110,221	452,730
1932	149,400	134,045	16,345	47,840	347,430
1933	136,071	135,203	11,000	9,447	291,721
1934	201,177	173,044	16,071	39,376	429,668
1935	200,002	192,166	10,382	42,244	444,794
1936	220,232	227,118	13,903	52,910	514,163
1937	211,243	193,050	15,258	75,415	494,964
1938	216,395	163,979	15,993	86,050	482,417
1939	296,618	198,018	17,800	88,115	600,551
1940	409,565	287,172	18,196	98,677	813,610
1941	527,455	384,545	19,888	140,386	1,072,274
1942	457,904	487,655	20,147	143,803	1,109,509
1943	336,206	472,165	21,869	130,464	960,704
1944	453,359	399,769	22,664	126,618	1,002,410

MINING COSTS

The mining costs are summarized below:

<u>Coal Creek</u>				<u>Michel</u>			
<u>Inside Labor etc</u>	<u>Surface Labor etc</u>	<u>General Charges</u>	<u>Total</u>	<u>Inside Labor etc</u>	<u>Surface Labor etc</u>	<u>General Charges</u>	<u>Total</u>
30 \$ 2.417	\$.463	\$.486	\$3.366	\$ 2.004	\$.677	\$.235	\$2.916
31 2.376	.454	.538	3.368	1.937	.581	.249	2.767
32 2.769	.542	.708	4.019	1.785	.543	.296	2.624
33 1.882	.397	.752	3.031	1.488	.465	.390	2.343
34 1.414	.282	.618	2.314	1.442	.416	.268	2.126
35 1.530	.365	.703	2.598	1.350	.427	.277	2.054
36 1.381	.332	.535	2.248	1.328	.386	.238	1.952
37 1.275	.268	.510	2.053	1.450	.508	.267	2.225
38 1.474	.295	.559	2.328	1.579	.583	.301	2.463
39 1.379	.294	.505	2.178	1.439	.478	.248	2.165
40 1.289	.294	.488	2.071	1.365	.422	.201	1.988
41 1.359	.250	.520	2.129	1.412	.467	.192	2.071
42 1.425	.269	.646	2.340	1.447	.568	.240	2.255
43 1.548	.446	.823	2.817	1.553	.652	.311	2.516
44 2.073	.649	.717	3.439	2.048	.601	.343	2.992

The above mining costs do not include charges for depreciation and depletion.

The total cost of coal per ton is summarized as under:

(Coal Creek and Michel Operations)

	<u>Combined Mining Cost</u>	<u>Other Charges</u>	<u>Depn. & Depletion</u>	<u>Total Cost</u>
1931	\$ 3.000	\$.280	\$.471	\$ 3.751
1932	3.042	.217	.406	3.665
1933	2.485	.252	.473	3.210
1934	2.171	.164	.358	2.693
1935	2.174	.038	.353	2.565
1936	2.011	.060	.332	2.403
1937	2.151	.090	.343	2.584
1938	2.430	.137	.345	2.912
1939	2.167	.113	.318	2.598
1940	2.002	.083	.265	2.350
1941	2.081	.063	.227	2.371
1942	2.270	.056	.224	2.550
1943	2.519	.095	(x) .330	2.944
1944	3.123	.065	(x) .526	3.714

(x) - Includes amortization of new construction.

PRODUCTION and PER MAN-DAY OUTPUT

	<u>Tons Produced</u>	<u>Output per Man-Day</u>
1931	452,730	
1932	347,430	
1933	291,721	3.9 Tons
1934	429,668	4.1 "
1935	444,794	4.1 "
1936	514,163	4.3 "
1937	494,964	3.9 "
1938	482,417	3.6 "
1939	600,551	4.3 "
1940	813,610	4.8 "
1941	1,072,274	4.4 "
1942	1,109,509	4.3 "
1943	960,704	4. "
1944	<u>1,002,410</u>	3.8 "
	<u>9,016,945</u>	

RECAPITULATION

Using representative years 1930 - 1935 - 1939 and 1944, the undernoted are comparative figures of certain aspects of the operations of the Company:-

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
valuation of Properties (Net)	\$3,908,930.86	3,190,392.97	3,239,413.55	3,792,247.38
et current position	\$2,270,003.74	2,291,036.93	1,793,915.39	1,580,310.48
urplus	\$ 2,984.47	-731,226.76	-1,176,500.13	-800,560.64
eserves	Nil	Nil	Nil	Nil
profit - Before income tax	\$ 177,492.39	242,432.65	199,674.78	261,077.94
- After income tax	\$ 166,881.86	215,441.14	164,132.07	158,664.89
roduction - Tonnage	-	444,794	600,551	1,002,410
" Per Man-Day	-	4.1	4.3	3.8
labor Costs - Per ton	\$ -	1.53	1.479	2.091
otal mining and erating costs, cluding deprecia- on and depletion - Per ton	\$ -	2.565	2.598	3.714
verage selling price Coal per ton	\$	2.896	2.743	3.703

Mr. Morrison presented -

EXHIBIT 288 - Financial Statements 1930 - 1944,
Hillcrest Mohawk Collieries Limited,
Bellevue, Alta., Corporate History
and Summary of Operating Experience.

(Supported by Exhibit "J" for identification).

Hillcrest Mohawk Collieries Limited commenced business on 1st December, 1939, taking over the operation of mine and leases in Bellevue, Alberta, previously owned by Mohawk Bituminous Mines Limited and Hillcrest Collieries Limited. Preferred and Common shares of a par value of \$1,250,000.00 were issued for plant, machinery and equipment, together with the surface and mineral rights of certain freehold and leasehold properties in Bellevue.

The values of the assets acquired at the inception of the Company were established by agreement with the Department of National Revenue, and subsequently confirmed by the Board of Referees under the Excess Profits Tax Act, when the standard profit of the company was ascertained at \$87,500.00.

Since the inception of the Company to 1944, additions to property totalling \$240,221.66 have been made.

A summary of the financial position of the Company as at 31st March, 1944, is as follows:

Assets

Net Properties	\$ 1,290,434.15
Deferred	3,374.01
Net current position, including investments	<u>121,750.67</u>
	<u>\$ 1,415,558.83</u>

Liabilities

Share Capital	\$ 1,220,000.00
Capital Loans	60,000.00
Reserves	30,000.00
Surplus	<u>105,558.83</u>
	<u>\$ 1,415,558.83</u>

One dividend in the amount of \$20,000.00 was paid in 1942.

OPERATING RESULTS

The Company has shown the following profits before and after provision for income tax:

	<u>Before Income Tax</u>	<u>After Income Tax</u>
1940	\$ 20,546.25	\$ 13,951.48
1941	39,775.85	26,179.02
1942	84,893.69	52,280.84
1943	49,698.74	31,163.88
1944	<u>55,893.41</u>	<u>33,031.24</u>
	<u>\$250,807.92</u>	<u>\$ 156,606.46</u>

A further summary of the profit and loss expressed in amounts per ton is tabulated below:

	<u>Sales & Sundry Revenue</u>	<u>Mining Costs</u>	<u>Admin. & Fees</u>	<u>Depn. & Depletion</u>	<u>Profit before Income Tax</u>	<u>Income Tax</u>	<u>Profit after In- come Tax</u>
1940	\$ 2.79	\$ 2.09	\$.24	\$.12	\$.34	\$.11	\$.23
1941	2.77	2.19	.25	.13	.20	.07	.13
1942	2.87	2.20	.26	.12	.29	.11	.18
1943	3.03	2.40	.29	.17	.17	.06	.11
1944	3.66	2.94	.31	.21	.20	.08	.12

Depletion is included in the operating statement at 4¢ per ton 1940 and 1941, 3¢ in 1942, 4¢ in 1943 and 5¢ in 1944.

SALES

The sales in tons and values are summarized hereunder:

	<u>Tonnage</u>		<u>Average Selling Price</u>
	<u>Railways</u>	<u>Commercial</u>	
1940	53,845	6,370	\$ 2.79
1941	172,896	23,346	2.76
1942	246,057	44,152	2.86
1943	222,594	58,490	3.02
1944	150,908	127,030	3.65

MINING COSTS

The tabulation following sets out the details of the mining costs per ton:

	<u>Labor and Power</u> <u>Material</u>	<u>Taxes and</u> <u>Insurance</u>	<u>Royalties</u>	<u>W.C.B. &</u> <u>Other Charges</u>	<u>Total</u>	
1940	\$ 1.75	\$.10	\$.05	\$.11	\$.08	\$ 2.09
1941	1.75	.10	.04	.12	.18	2.19
1942	1.78	.08	.03	.11	.20	2.20
1943	2.05	.10	.03	.10	.12	2.40
1944	2.40	.11	.04	.10	.29	2.94

PRODUCTION TONNAGE and PER MAN-DAY OUTPUT

	<u>Tons Produced</u>	<u>Tons Per Man-Day</u>
1940	60,215 (4 months)	3.66 Tons
1941	196,241	3.93 "
1942	290,208	4.24 "
1943	281,084	3.72 "
1944	<u>277,938</u>	3.64 "
	<u><u>1,105,686</u></u>	

MR. MORRISON: The next is the corporate history and summary of experience of the International Coal and Coke Company Limited, Coleman, Alta., Exhibit 289, supported by Exhibit K for identification.

Exhibit 289 - Corporate History and Summary of Operating Experience of the International Coal and Coke Company Limited, Coleman, Alta.

International was originally incorporated in the year 1902 under the laws of the State of Washington, U.S.A. In the year 1919 the shareholders re-incorporated under the Dominion Companies Act exchanging shares in the American company for those in the Canadian company.

The original capital stock of 3,000,000 common shares were all exchanged for coal lands. Original working capital was provided by the issue of First Mortgage Debenture Bonds. These bonds were retired by the donation by a shareholder of \$120,000.00 in cash and to provide further capital an additional amount was provided by the donation of 200,000 shares which were sold for \$150,000.00. The capital surplus of \$270,000.00 shown on the Balance Sheet arises from these two transactions.

In addition to its mining activities, beehive coke ovens are operated in Coleman. Coking originally commenced in 1904 and continued to 1918, when it was discontinued until 1933, when manufacture re-commenced.

International also operates the Coleman Light & Water Company Limited, which supplies these utilities to the Town of Coleman.

Up to the end of 1944 International have produced over 11,000,000 tons of coal and 2,000,000 tons of coke. Sufficient reserves of coal are estimated as available for the Company's production requirements for the next one hundred years.

The shares of International are widely held both in the United States and Canada, with the Consolidated Mining and

Smelting Company of Canada Limited owning 41.41% of the total stock issued.

Financial Position as at December 31st, 1944

Assets

Net Properties	\$2,486,564.39
Investments - Subsidiaries	43,128.50
Prepaid and Deferred	51,233.99
Net Current position, including investments	1,065,159.81
	<hr/>
	\$ 3,646,086.69
	<hr/>

Liabilities

Capital	\$ 3,000,000.00
Surplus - Earned	291,737.10
Capital	270,000.00
Reserves	84,349.59
	<hr/>
	\$ 3,646,086.69
	<hr/>

Dividend Record

In the period 1930 - 1944 dividends totalling \$930,000.00 have been paid. Since 1937 they have been on the basis of 3% per annum.

OPERATING RESULTS

	<u>Before Income Tax</u>	<u>After Income Tax</u>
1930	\$ 24,519.82	\$ 22,842.68
1931	26,157.12	23,655.65
1932	25,791.52	22,874.61
1933	14,587.18	12,646.78
1934	73,888.98	65,052.74
1935	23,867.34	22,163.25
1936	88,562.21	72,426.81
1937	82,194.88	66,455.47
1938	136,480.18	107,848.16
1939	181,722.23	143,919.02

OPERATING RESULTS (Continued)

	<u>Before Income Tax</u>	<u>After Income Tax</u>
1940	\$149,912.57	\$ 98,054.60
1941	133,286.66	81,423.28
1942	86,458.42	51,505.05
1943	134,245.36	80,177.22
1944	161,250.79	89,048.52
	<hr/>	<hr/>
	\$1,342,925.26	\$ 959,993.84
	<hr/>	<hr/>

Profit or Loss per ton on coal and coke operations
is summarized hereunder:

	<u>Sales</u>	<u>C o a l Costs</u>	<u>Profit or Loss (-)</u>
1930	\$ 3.5086	\$ 3.5476	\$ -.0390
1931	3.4400	3.5360	-.0960
1932	3.3678	3.4612	-.0934
1933	3.2451	3.1686	.0765
1934	3.3240	2.9580	.3660
1935	2.7568	2.7731	-.0163
1936	2.6546	2.5729	.0817
1937	2.6840	2.5962	.0878
1938	2.7363	2.4791	.2572
1939	2.7378	2.3552	.3826
1940	2.7515	2.4773	.2742
1941	2.8383	2.6333	.2050
1942	2.9493	2.8695	.0798
1943	3.2747	3.0313	.2434
1944	3.8241	3.5092	.3149

The above results are before income tax and do not
include sundry revenues.

C o k e

	Sales	Costs	Profit or Loss (-)
1933	\$ 5.5532	\$ 6.1437	\$-.5905
1934	5.4624	5.8174	-.3550
1935	5.5590	5.6737	-.1147
1936	5.5695	5.1766	.3929
1937	5.5019	5.2188	.2831
1938	5.5007	5.0261	.4746
1939	5.5007	4.8886	.6121
1940	5.5005	5.1156	.3849
1941	5.6588	5.3027	.3561
1942	5.8569	5.6426	.2143
1943	5.9733	5.8172	.1561
1944	7.1587	6.9323	.2264

The above results are before income tax and do not include sundry revenues.

SALES

A summary of the sales in tons is tabulated hereunder:

	Railway	Consoli- dated mining	U.S.A.	Commer- cial	Employees, Co. Con- sumption Etc.	Total
1930	163,300	500	151	10,974	11,857	186,782
1931	130,165			10,539	4,305	145,009
1932	106,846		380	9,114	8,338	124,678
1933	99,775	1,095	96	11,798	10,004	122,768
1934	120,273	3,453	96	5,095	8,200	137,117
1935	188,198	24,323		5,372	5,596	223,489
1936	201,931	49,910		3,935	7,558	263,334
1937	207,961	42,221		1,405	6,419	258,006
1938	200,543	28,974	760	4,632	6,498	241,407
1939	208,849	28,275	569	4,868	7,801	250,362
1940	240,427	26,927	36	2,891	4,493	274,774
1941	270,752	20,653	38	3,117	3,995	298,555
1942	290,089	35,016		13,116	6,483	344,704
1943	255,076	30,216	20,484	15,186	6,641	327,603
1944	286,859	24,308	426	6,040	6,326	323,959

MINING COSTS

Analysis of operating costs per ton is as follows:

	Labor	Materials Power, Etc.	Adm.	Insurance Taxes & Rentals	Depn.	Deple- tion	Total
1930	\$1.9353	\$.7442	\$.2733	\$.2157	\$.2791	\$.1000	\$3.5476
1931	1.8611	.6942	.3395	.2543	.2869	.1000	3.5360
1932	1.8369	.6293	.3095	.2618	.3237	.1000	3.4612
1933	1.8989	.5884	.1487	.2252	.2075	.1000	3.1687
1934	1.7791	.5571	.1286	.2174	.1758	.1000	2.9580
1935	1.6546	.6394	.0889	.1628	.1274	.1000	2.7731
1936	1.5640	.5402	.0802	.1632	.1251	.1000	2.5727
1937	1.5499	.5703	.0740	.1646	.1372	.1000	2.5960
1938	1.5051	.5106	.0782	.1477	.1372	.1000	2.4788
1939	1.5124	.3996	.0779	.1455	.1199	.1000	2.3553
1940	1.4863	.4983	.0814	.2089	.1022	.1000	2.4771
1941	1.6473	.5077	.0660	.2052	.1073	.1000	2.6335
1942	1.8085	.5939	.0650	.2128	.0893	.1000	2.8695
1943	1.9411	.5133	.0744	.3016	.1009	.1000	3.0313
1944	2.2611	.6277	.0797	.3387	.1020	.1000	3.5092

PRODUCTION AND PER MAN-DAY OUTPUT

	Production Tonnage	Per Man Day	Coke Produced
1930	186,782 Tons	2.93 Tons	
1931	145,009 "	2.80 "	
1932	124,678 "	2.59 "	
1933	194,042 "	2.52 "	
1934	228,863 "	2.94 "	46,725 Tons
1935	321,721 "	2.93 "	59,856 "
1936	361,170 "	3.48 "	63,343 "
1937	357,550 "	3.48 "	65,242 "
1938	344,906 "	3.57 "	66,356 "
1939	353,551 "	3.67 "	68,999 "
1940	380,698 "	3.85 "	68,792 "
1941	403,945 "	3.93 "	70,616 "
1942	452,115 "	3.65 "	70,260 "
1943	428,736 "	3.42 "	71,607 "
1944	425,958 "	3.43 "	67,422 "
		3.53 "	67,999 "
	4,709,724 "		787,217 "

RECAPITULATION

Using representative years 1930, 1935, 1939 and 1944, the undernoted are comparable figures for certain aspects of the operations of the Company:-

	<u>1930</u>	<u>1935</u>
	\$	\$
Valuation of Properties (net)	2,573,162.92	2,820,610.67
Net Current Position	603,407.30	723,666.16
Surplus - Earned	118,296.28	225,185.25
- Capital		270,000.00
Reserves	104,191.73	84,414.15
Profit		
- Before Income Tax	24,519.82	23,867.34
- After Income Tax	22,842.68	22,163.25
Production		
- Coal Tonnage	186,782	321,721
- Per Man Day	2.93	2.93
Labor Costs per ton - Coal	\$1.9353	\$1.6546
Total Mining & Operating costs including Depreciation and Depletion - Per Ton - Coal	\$3.5476	\$2.7731
Average Selling Price Per Ton - Coal	\$3.5086	\$2.7568
	<u>1939</u>	<u>1944</u>
	\$	\$
Valuation of Properties (Net)	2,796,760.75	2,486,564.39
Net Current Position	822,365.35	1,108,288.31
Surplus - Earned	309,463.79	291,737.10
- Capital	270,000.00	270,000.00
Reserves	84,349.59	84,349.59
Profit		
- Before Income Tax	181,722.23	161,250.79
- After Income Tax	143,919.02	89,048.52
Production		
- Coal Tonnage	353,551	425,958
- Per Man Day	3.85	3.53
Labor Costs per ton - Coal	\$1.5124	\$2.2611
Total Mining & Operating costs including Depreciation and Depletion - Per ton - Coal	\$2.3552	\$3.5092
Average Selling Price Per Ton - Coal	\$2.7378	\$3.8241

MR. MORRISON presents

Exhibit 290 - Corporate History and Summary of
Operating Experience, McGillivray
Creek Coal and Coke Company Ltd.,
Coleman, Alta. (Supported by
Exhibit L for Identification)

The McGillivray Creek Coal Company operates mining property in Coleman, Alberta, to which it holds either freehold or leasehold rights. On freehold property it pays a royalty of 7c per ton of coal extracted, and on leasehold, in addition to the rental, 5c per ton royalty.

Of the original authorized capital of \$3,000,000 there is presently issued \$2,682,992.00. Of this issued total \$2,297,690.00 is represented in the coal lands account and \$243,908.00 was issued in 1923 in respect of a 10% stock dividend.

The share capital is quite widely held, with the Consolidated Mining and Smelting Company of Canada Limited owning 38.3% as at December, 1944.

FINANCIAL POSITION, 31st December, 1944

Assets

Net Property Value	\$1,556,410.10
Deferred	78,274.29
Net Current Position, including investments	<u>538,905.61</u>
	<u>\$2,173,590.00</u>

Liabilities

Share Capital	\$2,682,992.00
Reserves	13,756.26
Deficit	<u>- 523,158.26</u>
	<u><u>\$2,173,590.00</u></u>

The above deficit arises through the payment of dividends charged to surplus out of Depletion Reserve. During the period under review McGillivray paid dividends to shareholders totalling \$1,140,271.60 varying annually from nil to 7%.

In the period 1931 to 1944, \$349,564.02 has been added to the property account.

OPERATING RESULTS

	<u>Before Income Tax</u>	<u>After Income Tax</u>
1930	\$ 152,745.33	\$ 140,356.76
1931	84,108.61	77,539.92
1932	69,297.10	61,750.45
1933	1,553.00	1,359.09
1934	29,869.00	26,135.66
1935	92,183.89	77,841.35
1936	65,773.75	54,974.79
1937	82,273.75	68,198.40
1938	83,552.73	68,623.69
1939	96,303.63	78,699.94
1940	95,947.65	61,880.61
1941	22,092.42	14,354.39
1942	44,101.41	26,100.85
1943	58,557.76	34,774.66
1944	6,610.04	3,606.03
	<u>\$ 984,970.07</u>	<u>\$ 796,196.79</u>

Profit per ton on operations is summarized hereunder:

	Sales	Misc. Rev- enue	Mining Cost	Gen. Ex- pense	Depn. & De- pletion	Profit before Income Tax	Profit after Income Tax
1930	\$3.570	\$.042	\$2.363	\$.373	\$.322	\$.554	\$.509
1931	3.451	.053	2.303	.441	.375	.385	.355
1932	3.313	.065	2.202	.510	.424	.242	.216
1933	3.047	.062	2.274	.456	.368	.011	.009
1934	3.024	.058	2.173	.458	.291	.160	.140
1935	2.732	.026	1.989	.290	.185	.294	.248
1936	2.775	.033	2.060	.313	.191	.244	.204
1937	2.730	.037	1.974	.313	.186	.294	.244
1938	2.751	.042	1.999	.316	.180	.298	.245
1939	2.694	.043	1.949	.296	.169	.323	.264
1940	2.683	.045	1.969	.310	.158	.291	.188
1941	2.827	.043	2.312	.331	.160	.067	.043
1942	2.994	.041	2.402	.343	.160	.130	.077
1943	3.479	.049	2.638	.484	.188	.218	.129
1944	3.935	.053	3.229	.572	.161	.026	.014

SALES

Analysis by tons of disposition of coal and price received follows:

	<u>Railway</u>	<u>Commercial</u>	<u>Employees Local & Co.</u>	<u>Total</u>
1930	212,476	54,607	8,773	275,856
1931	158,127	52,054	8,470	218,651
1932	211,038	61,794	12,998	285,830
1933	102,396	41,687	7,178	151,261
1934	121,765	54,143	10,331	186,239
1935	231,296	70,942	11,241	313,479
1936	215,928	44,221	8,873	269,022
1937	213,517	55,943	9,958	279,418
1938	223,839	46,831	9,578	280,248
1939	236,876	52,254	9,255	298,385
1940	267,209	52,710	9,650	329,569
1941	266,391	51,287	10,312	327,990
1942	258,285	70,707	11,053	340,045
1943	124,904	132,961	10,848	268,713
1944	180,958	58,269	10,265	249,492

MINING COSTS

	<u>Labor</u>	<u>Material</u>	<u>Power</u>	<u>Total</u>
1930	\$ 1.837	\$.254	\$.272	\$ 2.363
1931	1.691	.293	.319	2.303
1932	1.625	.219	.358	2.202
1933	1.815	.183	.276	2.274
1934	1.728	.214	.231	2.173
1935	1.586	.212	.191	1.989
1936	1.632	.224	.204	2.060
1937	1.602	.182	.190	1.974
1938	1.630	.179	.190	1.999
1939	1.606	.163	.180	1.949
1940	1.607	.183	.179	1.969
1941	1.921	.204	.187	2.312
1942	1.994	.213	.195	2.402
1943	2.131	.252	.255	2.638
1944	2.653	.285	.291	3.229

PRODUCTION AND PER MAN DAY OUTPUT

	<u>Production Tonnage</u>	<u>Per Man-Day Output</u>
1930	276,440 (Year to 31.3.30)	3.00 Tons
1931	219,180 (1 Year to 31.3.31) 181,208 (1 year to 31.3.32)	3.183
1932	105,494 (9 months to 31.12.32)	3.330
1933	149,789 (1 year to 31.12.33)	3.103
1934	187,195	3.135
1935	312,791	3.120
1936	269,637	3.328
1937	279,473	3.398
1938	281,259	3.352
1939	297,524	3.408
1940	327,579	3.464
1941	327,991	3.041
1942	339,621	3.023
1943	268,706	2.876
1944	249,813	2.817

4,073,700 (15 years and 9 months)

Using representative years 1930, 1935, 1939 and 1944, the undernoted are comparative figures of certain aspects of the operations of the Company:-

	<u>1930</u>	<u>1935</u>
Valuation of Properties (Net)	\$2,078,739.06	\$1,927,789.31
Net Current Position	347,628.75	326,097.15
Surplus	- 226,916.61	- 409,151.07
Reserves	\$ 13,756.26	\$ 13,756.26
Profit		
- Before Income Tax	\$ 152,745.33	\$ 92,183.89
- After Income Tax	140,356.76	77,841.35
Production		
- Tonnage	276,440	312,791
- Tons per Man-Day	3.00	3.120
Labor Costs - per Ton	\$ 1.837	\$ 1.586
Total Mining & Operating costs including Depreciation and Depletion - per ton	\$ 3.058	\$ 2.464
Average Selling Price - Per Ton	\$ 3.570	\$ 2.732
	<u>1939</u>	<u>1944</u>
Valuation of Properties (Net)	\$1,734,566.90	\$1,556,410.10
Net Current Position	516,389.42	538,905.61
Surplus	- 409,504.17	- 523,158.26
Reserves	\$ 13,756.26	13,756.26
Profit		
- Before Income Tax	96,303.63	6,610.04
- After Income Tax	78,699.94	3,606.03
Production		
- Tonnage	297,524	249,813
Tons per Man-Day	3.408	2.817
Labor Costs - per ton	\$ 1.606	\$ 2.653
Total Mining & Operating costs, including Depreciation and Depletion - per ton	\$ 2.414	\$ 3.962
Average Selling Price - Per Ton	\$ 2.694	\$ 3.935

MR. MORRISON presents

Exhibit 291 - Corporate History and Summary of
Operating Experience of West
Canadian Collieries Limited,
Blairmore, Alberta, accompanied
by Exhibit M for Identification

HISTORY OF THE COMPANY

West Canadian Collieries Limited was incorporated on the 2nd day of April, 1903, under The Companies Act, 1862 to 1900, of Great Britain, and was authorized to carry on business in Canada by virtue of a Special Act of the Parliament of Canada, being Chapter 40 of the Statutes of Canada, 1904. The authorized capital is £720,000, of which £680,618 has been issued.

Pursuant to its Charter powers, the Company acquired properties in Blairmore, Alberta, and elsewhere, some of which were partially developed.

The details of the consideration for which the share capital was issued are as follows:

7th April, 1903	Allotment for cash to Mr. Charles Remy, who was paid an identical amount of properties purchased	£320,000
December, 1903	Allotment for the acquisition of the properties of the United Coal Fields of British Columbia Limited	320,000
May, 1903 to September, 1906	Allotment for Cash	40,318
21st April, 1920	do	200
25th March, 1927	do	100
		<u>£ 680,618</u>

Debentures were sold in the years 1910 and 1911 totalling £300,000 for further improvements, working capital and the cancellation of certain way leave charges that a railroad company had the right to make. The debentures were redeemed between 1914 and 1927.

The above capital was used practically all for the acquisition of mining rights, properties, workings and plant. Extensive improvements and additions have been made to the

properties, mainly by the use of depreciation moneys.

In addition to the operation of the mines in Blairmore and Bellevue, the company own and operate the waterworks system in Bellevue, the electric light distribution plants in Blairmore and Bellevue, and hotels, apartments and houses in both points.

FINANCIAL POSITION

As at the end of 1943, the latest date for which a Balance Sheet of the Company is available, the following position is shown:

Assets

Net Properties	\$ 3,279,442.00
----------------	-----------------

Net Current Position	779,680.00
----------------------	------------

	\$ 4,059,122.00
--	-----------------

Liabilities

Capital	\$ 3,312,341.00
---------	-----------------

Reserves	746,781.00
----------	------------

	\$ 4,059,122.00
--	-----------------

Balance Sheets of this Company are expressed in Sterling, and for the purposes of the statements submitted, conversion to Canadian Dollars has been made at par.

During the period under review approximately \$700,000.00 has been expended on the Company's properties.

In the same period \$676,000 has been paid in dividends.

OPERATING RESULTS

The operations of the Company show the following results before and after the payment of income taxes:

	<u>Before Income Tax</u>	<u>After Income Tax</u>
1930	\$ 3,564.55	\$ - 738.00
1931	51,920.58	51,920.58
1932	- 178,463.65	-185,458.39
1933	- 14,606.37	- 14,606.37
1934	727.33	727.33
1935	2,960.24	- 6,962.55
1936	42,774.61	34,233.05
1937	56,773.56	43,009.81
1938	- 28,207.94	- 28,212.63
1939	8,729.85	4,157.98
1940	- 19,639.73	- 20,338.12
1941	173,328.17	102,588.27
1942	87,605.81	51,878.12
1943	85,619.91	(x) 85,619.91
1944	87,545.53	(x) 87,545.53
	<u>360,632.45</u>	<u>205,364.52</u>

(x) - Tax not yet ascertained

A summarized statement of Profit or Loss per ton is tabled hereunder:

	<u>Sales</u>	<u>Mining Cost & Adm.</u>	<u>Depn. & De- ple- tion</u>	<u>Sundry Revenue</u>	<u>Sundry Ex- pense</u>	<u>Net. Profit or Loss Before Taxes</u>	<u>After Taxes</u>
1930	3.558	2.945	.584	.213	.234	.008	-.002
1931	3.432	2.633	.581	.196	.258	.156	.156
1932	3.168	3.442	.542	.309	.561	-1.068	- 1.110
1933	3.055	2.605	.370	.219	.345	-.046	-.046
1934	3.050	2.657	.334	.223	.280	.002	.002
1935	2.861	2.440	.314	.163	.262	.008	-.017
1936	2.849	2.344	.339	.169	.223	.112	.090
1937	2.907	2.357	.370	.130	.167	.143	.108
1938	2.674	2.341	.374	.131	.161	-.071	-.071
1939	2.625	2.242	.350	.117	.132	.018	.009
1940	2.609	2.314	.283	.071	.112	-.029	-.030
1941	2.797	2.322	.281	.050	.063	.181	.107
1942	2.931	2.612	.296	.118	.054	.087	.032
1943	3.366	3.010	.337	.138	.063	.094	.094
1944	3.914	3.514	.371	.105	.035	.099	.099

SALES

Analysis by tons of the disposition of the coal is shown hereunder:

	<u>Railways</u>	<u>Commercial</u>	<u>U.S.A.</u>	<u>Co. Use, Etc.</u>	<u>Total</u>
1930	328,724	66,557	11,224	12,656	419,161
1931	266,357	51,528	4,160	9,937	331,982
1932	106,583	49,721	1,477	9,328	167,109
1933	225,446	81,513	1,669	10,984	319,612
1934	250,383	86,802	2,712	11,267	351,164
1935	278,637	96,250	7,475	13,787	396,149
1936	271,175	89,325	8,410	13,548	382,458
1937	297,950	75,883	8,198	13,863	395,894
1938	252,525	118,494	9,914	19,060	399,993
1939	341,721	135,154	13,601	10,651	501,127
1940	492,974	145,084	15,268	14,456	667,782
1941	702,409	220,661	16,913	16,565	956,548
1942	580,004	339,829	66,341	16,053	1,002,227
1943	407,360	282,070	203,655	16,949	910,034
1944	529,506	165,109	168,012	16,424	879,051

MINING COSTSBellevue

	<u>Labor</u>	<u>Material</u>	<u>Power</u>	<u>Adm.</u>	<u>General</u>	<u>Total</u>
1930	\$ 1.970	\$.380	\$.184	\$.225	\$.258	\$ 3.017
1931	1.710	.280	.164	.254	.268	2.676
1932	2.122	.350	.239	.441	.400	3.552
1933	1.682	.306	.173	.254	.290	2.705
1934	1.647	.309	.162	.248	.262	2.628
1935	1.620	.264	.140	.193	.245	2.462
1936	1.544	.246	.144	.198	.254	2.386
1937	1.570	.256	.163	.200	.277	2.466
1938	1.559	.261	.165	.200	.288	2.473
1939	1.444	.223	.128	.162	.230	2.187
1940	1.600	.251	.141	.135	.224	2.351
1941	1.603	.269	.113	.107	.206	2.298
1942	1.903	.321	.144	.107	.236	2.711
1943	2.110	.341	.173	.117	.366	3.107
1944	2.666	.501	.186	.145	.481	3.979

MINING COSTS (Continued)Greenhill

	<u>Labor</u>	<u>Material</u>	<u>Power</u>	<u>Adm.</u>	<u>General</u>	<u>Total</u>
1930	\$ 1.855	\$.381	\$.174	\$.228	\$.187	\$ 2.825
1931	1.695	.293	.153	.254	.193	2.588
1932	2.015	.362	.186	.564	.348	3.475
1933	1.479	.295	.132	.255	.196	2.357
1934	1.710	.384	.160	.254	.208	2.716
1935	1.567	.315	.139	.205	.190	2.416
1936	1.471	.320	.133	.203	.196	2.323
1937	1.406	.321	.129	.200	.200	2.256
1938	1.458	.315	.125	.200	.190	2.288
1939	1.501	.306	.133	.169	.172	2.281
1940	1.529	.308	.124	.138	.175	2.274
1941	1.606	.354	.101	.108	.179	2.348
1942	1.760	.404	.094	.107	.181	2.546
1943	1.947	.483	.080	.116	.268	2.894
1944	2.126	.512	.078	.145	.301	3.162

In the foregoing figures the charge of 40c per ton for depreciation, depletion and reserve for new works has been eliminated. No amount is included in the foregoing mining costs for depreciation or depletion.

PRODUCTION AND PER MAN -DAY OUTPUT

	<u>Bellevue</u>		<u>Greenhill</u>	
	<u>Production Tonnage</u>	<u>Per Man-Day Output</u>	<u>Production Tonnage</u>	<u>Per Man-Day Output</u>
1930	208,413	3.130 Tons	210,748	3.485 Tons
1931	164,620	3.552	167,363	3.633
1932	92,972	2.630	74,138	2.974
1933	158,124	4.921	161,488	5.290
1934	180,767	5.120	170,397	4.908
1935	202,301	4.046	193,974	3.790
1936	192,573	4.326	189,886	3.926
1937	189,776	3.787	206,119	4.170
1938	189,684	3.881	204,213	4.067
1939	268,242	4.898	235,451	4.261
1940	317,788	4.086	350,909	4.246
1941	453,374	4.294	501,808	4.185
1942	372,204	3.746	631,950	4.151
1943	308,847	3.296	596,196	4.121
1944	255,152	2.923	598,488	4.335
	<hr/> 3,554,837		<hr/> 4,493,128	

RECAPITULATION

Using representative years 1930, 1935, 1939 and 1944, the undernoted are comparative figures of certain aspects of the operations of the Company:-

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Valuation of Property (Net)	\$3,843,820.00	3,490,189.00	3,279,442.00	2,953,147.00
Net current position	794,527.00	683,469.00	779,680.00	1,305,970.00
Surplus	69,827.00	-	-	216,065.00
Reserves	1,256,179.00	861,317.00	746,781.00	730,224.00
Profit -				
Before In. Tax	3,564.55	2,960.24	8,729.85	87,545.53
After Inc. Tax	- 738.00	- 6,962.55	4,157.98 ^x	87,545.53

x Income Tax not determined

Production

- Tonnage				
Bellevue	208,413	202,301	268,242	255,152
Greenhill	<u>210,748</u>	<u>193,974</u>	<u>235,451</u>	<u>598,488</u>
	<u>419,161</u>	<u>396,275</u>	<u>503,693</u>	<u>853,640</u>

Tons Per Man -

Bellevue	3.130	4.046	4.898	2.923
Greenhill	3.485	3.790	4.261	4.335

Labor Costs -
per ton

Bellevue	\$ 1.97	1.62	1.444	2.666
Greenhill	\$ 1.855	1.567	1.501	2.126

Mining & operating
costs, including
depreciation and
depletion - Per ton

\$ 3.763	3.016	2.724	3.920
----------	-------	-------	-------

Average selling
price - Per ton

\$ 3.558	2.861	2.625	3.914
----------	-------	-------	-------

MR. MORRISON presents

Exhibit 292 - Corporate History and Summary of Operating Experience, Brazeau Collieries Limited, Nordegg, Alta., accompanied by supporting Financial Statement Exhibit N for Identification

Brazeau was incorporated in 1911, issuing \$4,000,000.00 in common shares for the coal properties acquired.

Preferred shares were issued subsequently to retire the Bonds outstanding. The amount of preferred shares issued and outstanding as at 30th June, 1944, is \$240,240.00.

This Company has received \$147,231.70 in subsidies from the Emergency Fuel Board in respect of the period ending in 1943.

During the year 1939 an appraisal was made of the properties resulting in a reduction of the depreciation reserve of \$921,743.36. Of this amount credited to surplus, \$250,000.00 was set up as a Reserve, and the value of an investment in a subsidiary owning coal leases was written down by \$310,827.21, to the nominal value of \$1.00.

FINANCIAL POSITION, 1944

Assets

Net Property Values	\$4,438,854.93
Deferred	35,755.77
Subsidiaries	10,000.00
Net Current Position	432,239.56
	<u>\$4,916,850.26</u>

Liabilities

Share Capital	\$4,240,240.00
Reserves	250,000.00
Surplus - Earned	389,152.26
- Capital	37,458.00
	<u>\$4,916,850.26</u>

Dividends totalling \$832,274.25 have been paid on the Common and Preferred Shares during the years 1930 to 1944 inclusive.

OPERATING RESULTS

After including depletion at 10c per ton the net results before and after income taxes are as follows:

	<u>Before Income Tax</u>	<u>After Income Tax</u>	<u>Taxable Income</u>
1930	\$ - 8,333.44	\$ - 10,600.65	\$ 15,406.25
1931	- 21,456.10	- 23,089.22	104,884.16
1932	86,159.77	57,828.79	92,773.21
1933	68,672.65	57,372.65	68,182.62
1934	49,400.71	38,082.11	54,398.06
1935	71,844.09	58,033.80	71,555.20
1936	53,630.23	41,808.22	50,599.10
1937	3,522.40	3,179.59	5,004.49
1938	33,632.28	21,281.52	57,774.61
1939	-24,138.66	-24,778.55	-6,746.61
1940	11,056.13	-1,643.87	48,284.02
1941	71,467.34	24,379.50	101,428.09
1942	-20,461.59	-26,964.51	16,257.29
1943	-13,068.41	-13,068.41	-543.33
1944	42,642.17	26,087.36	41,387.03
	<u>\$404,569.57</u>	<u>\$227,908.33</u>	<u>\$720,644.19</u>

The main factor contributing to the difference between the results as shown by the Company's books and taxable income is the disallowance of depreciation set up in the Company's records.

A summary of the profit and loss account per ton is tabulated below:

	Sales & Sundry Revenue	Sub- sidy	Mining Costs	General Charges	Depn. & Deple- tion	Profit Before Income Taxes	or Loss After Income Taxes
1930	\$ 3.537	\$	2.325	.505	.744	-.037	-.047
1931	3.515		2.194	.589	.843	-.111	-.119
1932	3.713		2.091	.799	.240	.583	.391
1933	3.632		2.073	.837	.244	.478	.408
1934	3.560		2.046	.875	.276	.363	.280
1935	3.635		2.018	.826	.273	.518	.418
1936	3.226		1.937	.702	.251	.336	.262
1937	3.222		2.131	.792	.275	.024	.022
1938	3.233		2.108	.662	.268	.195	.123
1939	3.166		2.199	.809	.354	-.196	-.201
1940	3.011		2.029	.575	.347	.060	-.009
1941	2.997		2.052	.501	.196	.248	.084
1942	3.220	.046	2.649	.486	.181	-.050	-.066
1943	3.682	.386	3.262	.638	.207	-.039	-.039
1944	4.468	.017	3.471	.645	.245	.124	.076

Production subsidy claimed as follows:- 1942 - \$ 18,854.98
 1943 - 130,764.81
 1944 - 6,004.75
\$ 155,624.54

SALES

An analysis of sales by tonnage is as follows:

	<u>T o n n a g e</u>		
	<u>Railway</u>	<u>Other</u>	<u>Total</u>
1930	205,467	17,408	222,875
1931	176,611	16,719	193,330
1932	130,927	16,750	147,677
1933	130,414	13,100	143,514
1934	120,445	15,682	136,127
1935	127,134	11,695	138,829

SALES (Continued)

	<u>Railway</u>	<u>Other</u>	<u>Total</u>
1936	141,750	17,753	159,503
1937	128,955	14,702	143,657
1938	162,250	10,341	172,591
1939	115,702	7,441	123,143
1940	175,128	8,561	183,689
1941	272,981	14,232	287,213
1942	383,419	22,804	406,223
1943	293,062	45,300	338,362
1944	334,437	8,946	343,383

MINING COSTS

An analysis per ton of the items included in Mining Costs referred to above is as follows:

	<u>Labor</u>	<u>Materials</u>	<u>Power</u>	<u>Total</u>
1930	\$ 1.663	\$.363	\$.299	\$ 2.325
1931	1.571	.319	.304	2.194
1932	1.523	.286	.282	2.091
1933	1.490	.291	.292	2.073
1934	1.475	.312	.259	2.046
1935	1.460	.266	.292	2.018
1936	1.417	.265	.255	1.937
1937	1.509	.324	.298	2.131
1938	1.483	.365	.260	2.108
1939	1.532	.388	.279	2.199
1940	1.547	.377	.105	2.029
1941	1.540	.430	.082	2.052
1942	1.925	.632	.092	2.649
1943	2.083	1.019	.160	3.262
1944	2.334	.958	.179	3.471

PRODUCTION AND PER MAN-DAY OUTPUT

	<u>Production Tonnage</u>	<u>Per Man-Day Output</u>
1930	223,636	3.33
1931	191,920	4.15
1932	148,005	3.38
1933	143,201	3.48
1934	136,127	3.56
1935	138,954	3.65
1936	159,386	3.80
1937	143,705	3.50
1938	172,226	3.90
1939	122,421	3.55
1940	183,283	4.51
1941	285,834	4.55
1942	401,657	3.74
1943	333,256	3.65
1944	<u>336,706</u>	3.50
	<u>3,120,317</u>	

RECAPITULATION

Using representative years 1930, 1935, 1939 and 1944, the undernoted are comparative figures of certain aspects of the operations of the Company:-

Valuation of Properties (Net)	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
	\$4,328,713.41	4,014,703.25	4,527,435.34	4,438,854.93
Net current position	622,729.81	556,482.59	427,092.45	442,239.56
Surplus - Earned Capital	438,215.25	128,943.38	431,136.06 35,358.00	389,152.26 37,458.00
Reserves	-	-	250,000.00	250,000.00
Profit - Before income tax	-8,333.44	71,844.09	-24,138.66	42,642.17
After income tax	-10,600.65	58,033.80	-24,778.55	26,087.36
Production - Tonnage	223,636	138,954	122,421	336,706
Tons per man	3.33	3.65	3.55	3.50
Labor costs - per ton	\$ 1.663	1.460	1.532	2.334
Total mining & operating costs, including depreci- ation and deple- tion - per ton	3.574	3.117	3.362	4.361
Average selling price per ton	3.537	3.635	3.166	4.468

MR. MORRISON presents

Exhibit 293 - Corporate History and Summary of
Operating Experience of Cadomin
Coal Company Limited (accompanied
by supporting Financial Statement
Exhibit Q for Identification)

The Cadomin Coal Company Limited was incorporated by Letters Patent under the laws of the Dominion of Canada in July of 1917, with an authorized capital of \$750,000.00 divided into 150,000 shares of \$5.00 each. In October of 1917 the capital was increased to \$2,000,000.00. In 1932 the share capital was converted into 1,200,000 shares of no

par value. At April, 1944, 1,088,964 shares were outstanding and shown on the books at a value of \$1,814,940.00. The President of the Company has the right to purchase in May, 1944, and April, 1945, 50,000 shares at 25c each. Leases were acquired by the issue of 287,870 shares at \$5.00 each valued at \$1,439,350.00. These shares were later converted into 863,610 of no par value.

In 1944 the Company received \$40,000.00 in financial assistance in developing new mines at Cadomin.

FINANCIAL POSITION - 1944

Assets

Net Property Value	\$ 1,021,453.53
Deferred	52,005.51
Net Current Position	<u>523,412.70</u>
	<u>\$ 1,596,871.74</u>

Liabilities

Share Capital	\$ 1,814,940.00
Deficit	<u>-218,068.26</u>
	<u>\$ 1,596,871.74</u>

Up until 1940 depletion was set up at the rate of 18¢ per ton but in 1940/1 accounts this was reduced for prior years to 10¢ by a credit to the deficit account of \$542,154.90, and in subsequent years depletion is entered at 10¢.

The deficit as shown above results from dividends being paid out of depletion reserves. For the 15 years under review, dividends to shareholders amounted to \$2,246,583.85.

OPERATING RESULTS

The following are the operating results for the 15 years adjusted to reduce the charge for depletion from 18¢ to 10¢ per ton:-

	<u>Profit or Loss Before Income Tax</u>	<u>Profit or Loss After Income Tax</u>	<u>Taxable Income</u>
1930	\$ 107,865.79	\$ 99,865.79	\$ 83,378.23
1931	323,465.72	289,437.44	297,946.54
1932	49,271.10	46,180.12	
1932	250,690.81	214,190.81	228,762.06
1933	141,892.26	116,392.26	146,553.80
1934	230,580.14	192,580.14	219,045.86
1935	93,871.70	73,052.92	83,996.22
1936	12,465.37	579.90	71,179.80
1938	56,472.05	47,622.79	39,415.26
1939	-68,993.22	-68,993.22	-57,817.14
1940	49,308.30	39,817.02	50,957.97
1941	54,741.82	33,977.97	59,055.46
1942	17,259.04	11,225.80	15,604.13
1943	32,785.17	21,672.78	27,780.99
1944	<u>82,210.72</u>	<u>47,425.54</u>	<u>86,225.95</u>
	<u>\$1,433,886.77</u>	<u>\$ 1,165,128.06</u>	<u>\$1,352,085.13</u>

A summary of the profit and loss account per ton after adjustment for a reduction of 8¢ in the depletion charge to 1940:

	<u>Sales</u>	<u>Mining Cost</u>	<u>Other Earnings</u>	<u>Adm. & Selling Expense</u>	<u>Profit or Loss Before Taxes</u>	<u>After Taxes</u>
1930	\$3.3830	3.0175	.1295	.2213	.2737	.2534
1931	3.4156	2.4234	.1072	.2296	.8702	.7787
1932	3.2740	2.3400	.1566	.2652	.7428	.6347
1933	3.1808	2.5311	.0918	.2558	.4857	.3984
1934	3.2090	2.3645	.0905	.3245	.7105	.5934
1935	3.0371	2.6591	.0896	.1778	.2898	.2255
1936	2.9562	2.6248	.0813	.3733	.0397	.0019
1938	2.8392	2.6346	.1016	.1967	.1191	.1005
1939	2.8573	2.9397	.1128	.3227	-.2923	-.2923
1940	2.8532	2.4215	.0740	.3525	.1532	.1237
1941	2.9352	2.6062	.0542	.2125	.1707	.1059
1942	3.0198	2.8912	.0750	.1485	.0551	.0358
1943	3.1630	3.0097	.0767	.1161	.1139	.0753
1944	3.5452	3.3887	.3289	.1457	.3088	.1781

SALES ANALYSIST o n n a g e

	<u>Railroad</u>	<u>Railroad</u>	<u>Commercial</u>
1930	311,151	43,638	23,702
1931	267,813	50,221	38,871
1931	70,886	14,535	18,212
1932	214,430	30,393	79,272
1933	184,975	29,530	63,860
1934	227,120	30,840	51,340
1935	209,999	35,178	60,135
1936	208,377	37,716	49,907
1938	319,238	49,156	79,485
1939	174,460	28,346	17,066
1940	257,992	24,666	22,221
1941	249,866	35,560	15,184
1942	233,467	44,124	16,412
1943	141,513	92,470	33,044
1944	127,279	62,153	56,449

MINING COSTS

	<u>Labor, Material and Power</u>	<u>General Charges</u>	<u>Depn. & Depletion</u>	<u>Total</u>
1930	\$ 2.4263	\$.3155	\$.2757	\$ 3.0175
1931	1.8571	.2849	.2814	2.4234
1932	1.7826	.2769	.2805	2.3400
1933	1.9462	.3043	.2806	2.5311
1934	1.8303	.2868	.2474	2.3645
1935	2.1200	.2989	.2402	2.6591
1936	2.0701	.3106	.2441	2.6248
1938	2.0635	.3176	.2535	2.6346
1939	2.2282	.3914	.3201	2.9397
1940	1.8849	.2787	.2579	2.4215
1941	2.0470	.3150	.2442	2.6062
1942	2.2011	.4455	.2446	2.8912
1943	2.2108	.5266	.2723	3.0097
1944	2.4958	.5774	.3155	3.3887

PRODUCTION AND PER MAN-DAY OUTPUT

	<u>Tonnage Produced</u>	<u>Per Man-Day Output</u>
1930	394,242	4.43
1931	371,731	
1932	446,721 (17 months)	4.41
1933	292,112	4.09
1934	324,531	4.4
1935	323,904	3.59
1936	314,359	3.7
1937	-	
1938	474,062 (16 months)	3.73
1939	236,015	3.39
1940	321,864	4.36
1941	320,778	4.08
1942	313,094	3.63
1943	287,746	3.80
1944	266,203	2.68
	<u>4,687,362</u>	

RECAPITULATION

Using representative years, 1930, 1935, 1939 and 1944, comparative figures for certain features of the Company's operations are given hereunder:-

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Valuation of Properties (Net)	\$1,448,902.70	835,482.28	711,811.08	1,021,453.53
Net current position	827,758.06	714,232.46	348,508.39	523,412.70
Surplus	479,641.16	-253,544.93	-699,979.54	-218,068.26
Reserves	Nil	Nil	Nil	Nil
Profit - Before income tax	107,865.79	93,871.70	-68,993.22	82,210.72
After income tax	99,865.79	73,052.92	-68,993.22	47,425.54
Production - Tons	394,242	323,904	236,015	266,203
Tons per man per day	4.43	3.59	3.39	2.68
Labor Costs - per ton	ψ -	1.64	1.673	1.998
Total mining & operating costs, including depreciation and depletion - per ton	3.2388	2.8369	3.2624	3.5344
Average selling price - per ton	3.3830	3.0371	2.8573	3.5452

MR. MORRISON presents

Exhibit 294 - Corporate History and Summary of Operating Experience of the Canmore Mines Limited, Canmore, Alberta
(supported by Financial Statement
Exhibit P for Identification)

The Canadian Anthracite Coal Company, now, by change of name, the Canmore Mines Limited, was organized in 1886.

In the early years of the Company's existence, it acquired 7340 acres of freehold lands which have a value on the books of \$1,733,391.29. This sum is represented by both shares and cash. For purposes of the Excess Profits Tax Act the lands are valued at \$1,249,151.92, the difference being appraisal

entries made in 1897 and 1918.

The H. W. McNeill Company leased and operated the property from 1891 to 1911. The Canmore Coal Company similarly leased and operated the holdings from 1911 to 1936. In 1936 the Company acquired ownership of the outstanding capital stock of the Canmore Coal Company and has operated under the name of Canmore Mines Limited.

The original capital stock of the Canadian Anthracite Coal Company Limited was 5,000 shares of \$100 each par value, and was increased to 10,000 shares of the same par value by Supplementary Letters Patent dated August 7, 1890.

So far as can be ascertained, the original authorized capital stock of 5,000 shares was all issued for cash. The additional 5,000 shares were issued in accordance with a resolution of the Shareholders dated March 20, 1890 to J. G. Thorp, McLeod, Stewart and L. S. Taintor, Trustees for certain coal lands, these individuals being described as trustees for the beneficial owners of the coal lands to be conveyed to the Company.

In 1897, by a "Deed of Reorganization", all of the outstanding capital stock of the Company, aggregating \$1,000,000.00, and all of the outstanding bonds of the Company, aggregating \$504,000.00 were turned over to the Company by the holders thereof and cancelled. New stock was then issued with a par value of \$705,600.00. A further 50 shares par value \$100 each were issued in July, 1915, bringing the issued capital stock to the figure at which it now stands, viz. \$710,600.00.

The reduction of \$294,400.00 in the outstanding capital stock, and the cancellation of bonds with a face value of \$504,000.00, confirmed by an enabling Act of Parliament, created a paid in surplus of \$798,400.00, which by minor adjustments since, reflects the figure of \$800,914.36 at which it now stands.

The Company, in addition to the production of coal, are engaged in the manufacture of briquettes.

No subsidies have been received by the Canmore Mines Limited. Cost of living bonus assistance amounting to \$45,526.30 was paid to this Company in respect of the years 1941 - 1944.

FINANCIAL POSITION - 1944

Assets

Net Property Value	\$ 1,633,476.02
Deferred, including Refundable Taxes	137,545.89
Net Current Position, incl. investments	<u>840,474.39</u>
	<u>\$ 2,611,496.30</u>

Liabilities

Capital	\$ 710,600.00
Surplus - Earned	1,099,981.94
- Capital	<u>800,914.36</u>
	<u>\$ 2,611,496.30</u>

During the period under review dividends totalling \$1,414,850.34 have been paid.

Yearly plant additions have been made as follows:

1938 (including adjustments to Plant account for previous years)	\$252,599.76
1939	38,526.48
1940	49,268.21
1941	36,990.16
1942	116,050.39
1943	55,423.30
1944	<u>32,062.64</u>
	<u>\$580,922.94</u>

OPERATING RESULTSCanmore

	<u>Before</u> <u>Income Tax</u>	<u>After</u> <u>Income Tax</u>	<u>Taxable</u> <u>Income</u>
1930	\$ 148,417.55	\$ 122,688.70	Not available
1931	62,580.21	50,642.53	do
1932	62,913.54	51,812.94	do
1933	-45,009.24	-45,009.24	do
1934	16,967.78	16,967.78	do
1935	-43,469.93	-43,469.93	- 43,469.93
1936	-10,642.50	-10,642.50	- 10,642.50
1937	51,644.75	41,144.75	34,568.30
1938	40,380.06	31,320.99	30,381.55
1939	16,281.01	13,510.27	13,121.53
1940	32,161.57	22,844.81	31,312.52
1941	190,624.97	110,790.38	191,467.68
1942	325,248.75	178,951.97	274,313.34
1943	339,703.49	214,755.83	235,906.86
1944	<u>308,281.79</u>	<u>144,160.34</u>	310,922.52
	<u>\$1,496,083.80</u>	<u>\$ 900,469.62</u>	

Anthracite

1930	\$ 199,324.88	\$ 191,335.73	\$ 98,477.58
1931	136,495.07	128,776.86	91,441.46
1932	90,368.68	78,436.66	85,450.11
1933	87,080.96	71,867.62	77,456.39
1934	49,334.75	34,600.63	65,141.09
1935	52,821.64	42,492.01	Not available
1936	29,938.91	16,771.66	do
1937	<u>25,231.68</u>	<u>25,231.68</u>	do
	<u>\$ 670,596.57</u>	<u>\$ 589,512.85</u>	

A summary of the Gross operating profit or loss per ton before Administration and Selling Expenses and Sundry Revenue is tabulated below:-

	<u>C O A L</u>			<u>B R I Q U E T T E S</u>		
	<u>Coal Sales</u>	<u>Costs</u>	<u>Profit</u>	<u>Sales</u>	<u>Costs</u>	<u>Profit</u>
1930	\$ 4.023	3.572	.451	6.877	6.230	.647
1931	3.950	3.793	.157	6.759	6.571	.188
1932	3.848	3.667	.181	6.562	6.375	.187
1933	4.000	4.607	-.607	5.810	6.080	-.270
1934	3.864	4.007	-.143	5.245	4.659	.586
1935	3.754	4.385	-.631	5.201	4.755	.446
1936	3.497	3.695	-.198	5.222	4.539	.683
1937	3.480	3.111	.369	5.222	4.062	1.160
1938	3.455	3.293	.162	5.242	3.971	1.271
1939	3.406	3.392	.014	5.211	3.962	1.249
1940	3.383	3.335	.048	5.200	4.010	1.190
1941	3.553	2.687	.866	5.144	4.605	.539
1942	3.582	2.529	1.053	5.358	4.584	.774
1943	3.556	2.674	.882	5.479	4.563	.916
1944	3.913	2.979	.934	5.799	4.966	.833

SALEST o n n a g e

	<u>Railways</u>	<u>Industrial</u>	<u>Retail and Wholesale Dealers</u>
1932	131,689	2,236	3,427
1933	83,829	2,377	4,523
1934	118,633	4,741	5,356
1935	99,571	7,310	11,117
1936	105,664	10,484	13,061
1937	114,567	10,480	12,732
1938	100,654	13,500	13,331
1939	105,572	21,804	15,908
1940	113,431	17,928	16,647
1941	180,463	23,510	27,060
1942	172,221	26,179	29,506
1943	175,959	29,283	24,306
1944	204,721	18,373	19,774

The above tonnages are for outside sales, the balance of coal produced being used for the manufacture of briquettes, power and employees.

MINING COSTS - Summarized analysis

		<u>Labor Material & Power</u>	<u>General Charges</u>	<u>Depn.</u>	<u>Depletion</u>	<u>Total</u>
1930	\$	2.541	.975	.056		3.572
1931		2.592	1.129	.073		3.794
1932		2.384	1.203	.084		3.671
1933		2.578	1.457	.115		4.150
1934		2.374	1.161	.093		3.628
1935		2.576	1.211	.108		3.895
1936		2.468	.913	.072		3.453
1937		2.426	.488			2.914
1938		2.376	.303	.311	.100	3.090
1939		2.431	.311	.322	.102	3.166
1940		2.380	.282	.296	.102	3.060
1941		2.079	.243	.226	.102	2.650
1942		2.023	.228	.182	.100	2.533
1943		2.042	.290	.212	.100	2.644
1944		2.175	.334	.348	.100	2.957

PRODUCTION AND PER MAN-DAY OUTPUT

	<u>Production Tonnage</u>	<u>Per Man-Day Output</u>	<u>Briquettes Production Tonnage</u>
1930	225,001	3.27	26,317
1931	180,753	3.02	19,267
1932	173,847	3.32	14,611
1933	125,394	2.90	13,254
1934	158,589	3.16	16,138
1935	140,696	2.84	17,605
1936	161,368	2.95	19,039
1937	154,332 (11 mos.)	3.08	20,362
1938	175,764	3.10	21,485
1939	176,092	3.15	22,637
1940	198,532	3.34	31,946
1941	271,143	4.07	57,755
1942	355,201	4.28	95,971
1943	332,320	4.15	104,396
1944	352,809	4.32	97,218
	<u>3,181,841</u>		<u>578,001</u>

RECAPITULATION

Using representative years 1930, 1935, 1939 and 1944, the undernoted are comparative figures for certain features of the operation of the Company:

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Valuation of Properties (Net)				
- Canmore	\$ 247,617.27	194,599.86	2,046,576.48	1,633,476.02
- Canadian Anthracite	<u>1,798,398.96</u>	<u>1,609,595.73</u>	-	-
	<u>\$2,046,016.23</u>	<u>1,804,195.59</u>		
Net Current Position -				
Canmore	383,843.48	291,483.27	507,175.73	840,474.39
Canadian Anthracite	<u>177,899.76</u>	<u>225,556.77</u>	-	-
	<u>\$ 561,743.24</u>	<u>517,040.04</u>		
Surplus - Earned				
Canmore	345,805.94	297,709.63	1,058,531.79	1,099,981.94
Canadian Anthracite	<u>668,735.63</u>	<u>527,489.41</u>	-	-
	<u>\$1,014,541.57</u>	<u>825,199.04</u>		
Surplus - Capital -				
Canmore	150,000.00	150,000.00	800,914.36	800,914.36
Canadian Anthracite	<u>800,914.36</u>	<u>800,914.36</u>	-	-
	<u>\$ 950,914.36</u>	<u>950,914.36</u>		
Reserves -				
Canmore	100,000.00	-	2,252.48	-
Canadian Anthracite	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
	<u>\$ 100,000.00</u>		<u>2,252.48</u>	
Profit - Before Income Tax				
Canmore	148,417.55	-43,469.93	16,281.01	308,281.79
Canadian Anthracite	<u>199,324.88</u>	<u>52,821.64</u>	-	-
	<u>\$ 347,742.43</u>	<u>9,351.71</u>		
-After Income Tax				
Canmore	122,688.70	-43,469.93	13,510.27	144,160.34
Canadian Anthracite	<u>191,335.73</u>	<u>42,492.01</u>	-	-
	<u>\$ 314,024.43</u>	<u>-977.92</u>		

RECAPITULATION (Continued)

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Production -				
Tonnage -				
Coal	225,001	140,696	176,092	352,809
Briquettes	26,317	17,605	22,637	97,218
Tons per Man-Day	3.27	2.84	3.15	4.32
Labor Costs per ton	- \$	2.1186	1.9486	1.8013
Total mining costs, including depreci- ation and depletion, but excluding admin- istration, selling expenses and Sundry				
Revenue - Per Ton	3.572	4.385	3.392	2.979
Average Selling Price, Per Ton	4.023	3.754	3.406	3.913

MR. MORRISON presents

Exhibit 295 - Corporate History and Summary of
Operating Experience of Luscar
Collieries Limited, Luscar, Alta.
(accompanied by supporting Finan-
cial Statement Exhibit Q for
Identification)

Luscar Collieries Limited has operated at Luscar, Alberta,
for many years, having capital stock outstanding of \$650,000.00.

A summary of the financial position as at June 30th,
1944, is shown hereunder:

Assets

Net Property Value	\$28,488.32
Deferred	5,455.24
Net Current Position including all invest- ments)	<u>1,109,610.23</u>
	<u>\$1,143,553.79</u>

Liabilities

Share Capital	\$ 650,000.00
Reserves	350,000.00
Surplus	<u>143,553.79</u>
	<u>\$1,143,553.79</u>

During the period under review net additions have been made to the property accounts as follows:

Gross Property Value - June, 1944	\$ 976,057.42
June, 1930	<u>593,421.34</u>
Net Addition	<u>\$ 382,636.08</u>

In the years 1930 - 1944 depreciation totalling \$801,740.52 has been charged to revenue, and depletion of 10¢ per ton amounting to \$283,682.10.

Dividends have been paid over the same period in the sum of \$666,250.00.

OPERATING RESULTS

The profit or loss by years for this Company, both before and after income tax, is as follows:

	<u>Before Income Tax</u>	<u>After Income Tax</u>
1930	\$210,317.57	\$193,617.57
1931	113,356.20	101,056.20
1932	84,877.85	70,063.42
1933	94,501.92	78,001.92
1934	38,486.76	30,486.76
1935	13,726.35	11,726.35
1936	-20,697.77	-20,697.77
1937	54,340.23	45,040.23
1938	20,311.69	20,311.69
1939	-3,650.84	-3,650.84
1940	25,522.63	16,627.63
1941	62,577.90	36,327.90
1942	-11,493.75	-11,493.75
1943	106,467.53	77,720.79
1944	65,377.98	34,425.50
	<u>\$ 854,022.25</u>	<u>\$ 679,563.60</u>

Summarized per ton profit and loss figures are tabulated below:

	Sales	Mining Cost & General Charges	Depn. & Depletion	Adm. & General Expense	Sundry Revenue	Profit Before Tax	or Loss After Tax
1930	\$ 3.434	2.302	.306	.155	.242	.913	.840
1931	3.470	2.446	.413	.231	.369	.749	.668
1932	3.462	2.617	.459	.191	.333	.528	.436
1933	3.391	2.402	.503	.209	.368	.645	.532
1934	3.398	2.722	.587	.239	.476	.326	.258
1935	3.340	2.769	.647	.254	.451	.121	.103
1936	3.101	2.785	.687	.174	.370	-.175	-.175
1937	3.041	2.284	.514	.183	.288	.348	.288
1938	2.971	2.448	.543	.199	.354	.135	.135
1939	2.942	2.641	.407	.223	.304	-.025	-.025
1940	2.863	2.435	.385	.112	.176	.107	.070
1941	2.944	2.455	.298	.111	.154	.234	.136
1942	3.062	3.029	.175	.108	.207	-.043	-.043
1943	3.245	2.710	.252	.094	.161	.350	.255
1944	3.762	3.339	.235	.130	.177	.235	.124

SALES ANALYSIS

	<u>T o n n a g e</u>	
	<u>Railway</u>	<u>Other</u>
1930	216,363	1,042
1931	142,298	481
1932	150,265	2,714
1933	131,911	6,420
1934	109,379	737
1935	105,122	989
1936	109,399	1,397
1937	137,354	10,004
1938	134,581	7,086
1939	129,041	4,593
1940	222,105	6,510
1941	253,561	5,856
1942	252,820	919
1943	214,317	72,891
1944	205,590	56,488

MINING COSTS and GENERAL CHARGES ANALYSIS

	<u>Labor</u>	<u>Material</u>	<u>Power</u>	<u>Royalties, etc.</u>	<u>Total</u>
1930	\$ 1.596	.300	.170	.236	\$ 2.302
1931	1.686	.314	.170	.276	2.446
1932	1.750	.436	.145	.286	2.617
1933	1.633	.309	.167	.293	2.402
1934	1.786	.340	.236	.360	2.722
1935	1.799	.382	.201	.387	2.769
1936	1.789	.438	.197	.361	2.785
1937	1.549	.275	.177	.283	2.284
1938	1.706	.318	.177	.247	2.448
1939	1.830	.350	.163	.298	2.641
1940	1.787	.304	.101	.243	2.435
1941	1.841	.308	.066	.240	2.455
1942	2.193	.456	.131	.249	3.029
1943	1.904	.426	.113	.267	2.710
1944	2.256	.578	.163	.342	3.339

PRODUCTION and PER MAN-DAY OUTPUT

	<u>Produced in Tonnage</u>	<u>Per Man-Day Output</u>
1930	230,449	-
1931	151,346	-
1932	160,731	-
1933	146,474	3.806
1934	118,349	3.029
1935	113,725	2.947
1936	118,576	3.12
1937	156,322	4.389
1938	150,565	3.5
1939	143,454	3.316
1940	238,227	-
1941	267,811	3.76
1942	266,942	3.14
1943	303,775	3.76
1944	278,248	3.55
	<u>2,844,994</u>	

RECAPITULATION

Using representative years 1930, 1935, 1939 and 1944, the undernoted are comparative figures of certain aspects of the operations of the Company:-

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Valuation of Properties (Net)	\$ 349,719.38	346,682.05	230,606.24	28,488.32
Net current position	838,353.60	792,214.12	836,882.64	1,109,610.23
Surplus	342,045.74	241,889.59	172,392.90	143,553.79
Reserves	200,000.00	250,000.00	250,000.00	350,000.00
Profit - Before income tax	210,317.57	13,726.35	-3,650.84	65,377.98
After income tax	193,617.57	11,726.35	-3,650.84	34,425.50
Production - Tonnage	230,449	113,725	143,454	278,248
Tons per man-day	-	2.947	3.316	3.55
Labor costs - per ton	\$ 1.596	1.799	1.830	2.256
Total mining & operating costs, including depreciation and depletion, per ton	2.763	3.670	3.271	3.704
Average selling price per ton	3.434	3.340	2.942	3.762

MR. MORRISON presents

Exhibit 296 - Corporate History and Summary of Operating Experience, Mountain Park Coals Limited, Mountain Park, Alberta (together with supporting Financial Statement Exhibit R for Identification)

Mountain Park Coal Company Limited was incorporated in 1910, and up to June 30th, 1914, \$1,747,577.03 was contributed in cash, \$500,015.00 of which was for shares and \$1,247,562.03 for six percent debentures. On 31st December, 1923, the Company was re-organized under the name of Mountain

Park Collieries Limited, the outstanding shares being cancelled and the debenture holders received \$1,042,430 common shares of a par value of \$1.00 each in full settlement of their claim for principal and interest of \$1,895,605.94. At the same time leases and mining rights were written off and the fixed assets reduced in book value by \$911,715.68.

On January 1st, 1937, the Company obtained a Dominion Charter and the name was changed to Mountain Park Coals Limited, with no change in the capital structure being made.

FINANCIAL POSITION - 1944

Assets

Net Property Value	\$ 345,456.52
Deferred	3,577.62
Net Current Position including all investments	<u>1,182,912.56</u>
	<u>\$ 1,531,946.70</u>

Liabilities

Share Capital	\$ 1,042,430.00
Reserves	486,328.32
Surplus	<u>3,188.38</u>
	<u>\$ 1,531,946.70</u>

Mountain Park investments include an interest in Luscar Collieries Limited, which is valued at \$127,702.41.

The property account shows an increase of \$679,371.11 in comparing the years 1930 and 1944.

During the 15 years 1930 - 1944 dividends totalling \$802,701.10 were paid to shareholders.

OPERATING RESULTS

	Profit or Loss Before Income Tax	Profit or Loss After Income Tax	Taxable Income
1930	\$ 97,268.65	\$ 91,747.20	\$ 71,018.65
1931	115,195.06	105,586.04	85,195.06
1932	112,517.58	99,452.94	104,475.43
1933	114,710.24	102,246.46	99,710.24
1934	124,600.77	109,804.68	109,600.77
1935	160,777.20	137,296.74	156,536.42
1936	77,160.40	66,093.63	73,778.50
1937	111,771.62	95,579.91	107,944.80
1938	93,746.03	80,186.84	90,394.66
1939	22,680.54	20,087.19	17,289.02
1940	6,950.84	4,478.13	11,936.26
1941	94,902.76	62,823.26	91,763.48
1942	-11,163.68	-11,163.68	-15,107.46
1943	-18,422.95	-18,422.95	-2,955.32
1944	-54,302.03	-54,302.03	-55,270.12
	<u>\$ 1,048,393.03</u>	<u>\$ 891,494.36</u>	<u>\$ 946,310.39</u>

The main factor accounting for the difference in operating profit and taxable income is investment income and amortization.

Depletion is set up in the books at 10¢ per ton.

An analysis of the profit and loss account per ton
is tabulated below:

	<u>Sales</u>	<u>Sundry & Invst. Revenue</u>	<u>Labor Material & Power</u>	<u>Other Charges</u>	<u>Depn. & Deple- tion</u>	<u>Profit Before Taxes</u>	<u>or Loss After Taxes</u>
1930 \$	3,493	.593	2.871	.406	.248	.561	.529
1931	3.523	.686	2.647	.450	.351	.761	.698
1932	3.377	.569	2.419	.454	.347	.726	.642
1933	3.315	.528	2.418	.433	.324	.668	.595
1934	3.338	.544	2.325	.476	.332	.749	.660
1935	3.285	.390	2.166	.434	.300	.775	.662
1936	3.106	.401	2.318	.461	.324	.404	.346
1937	2.898	.313	2.144	.345	.266	.456	.390
1938	2.865	.276	2.156	.340	.270	.375	.321
1939	2.799	.246	2.339	.382	.244	.080	.071
1940	2.771	.207	2.315	.325	.316	.022	.014
1941	2.917	.205	2.303	.325	.250	.244	.161
1942	3.016	.209	2.633	.354	.269	-.031	-.031
1943	3.300	.294	2.825	.487	.359	-.077	-.077
1944	3.736	.351	3.364	.588	.364	-.229	-.229

No production subsidies have been received by
Mountain Park.

SALES

	<u>T o n n a g e</u>	
	<u>Railway</u>	<u>Other</u>
1930	159,931	3,334
1931	136,252	5,424
1932	110,675	37,387
1933	133,414	30,118
1934	142,923	15,164
1935	181,271	17,211
1936	172,926	7,666
1937	220,168	13,140
1938	187,813	51,445
1939	166,711	101,500
1940	216,180	84,945
1941	315,001	56,172
1942	278,469	57,906
1943	168,105	50,820
1944	<u>144,117</u>	<u>72,342</u>
	<u>2,733,956</u>	<u>604,574</u>

MINING COSTS

The mining costs are shown hereinbefore under the heading of Profit and Loss.

PRODUCTION AND PER MAN TONS OUTPUT

	<u>Production Tonnage</u>	<u>Per Man-Tons Output</u>
1930	173,176	
1931	151,447	
1932	154,711	
1933	171,840	3.063
1934	166,488	3.287
1935	207,598	3.384
1936	190,625	3.07
1937	244,309	3.60
1938	249,889	3.81
1939	285,868	3.70
1940	315,459	3.70
1941	387,098	3.64
1942	362,106	3.32
1943	238,047	3.29
1944	<u>235,454</u>	3.30
	<u>3,534,115</u>	

RECAPITULATION

Using representative years 1930, 1935, 1939 and 1944, the undernoted are comparative figures of certain aspects of the operations of the Company:

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Valuation of Properties (Net)	\$ 503,119.25	461,953.53	700,668.69	345,456.52
Net current position	953,694.28	1,158,596.79	876,131.42	1,182,912.56
Surplus - earned	234,427.75	396,297.93	353,611.61 ^x	3,188.38
Reserves	186,328.32	186,328.32	186,328.32	486,328.32
^x In 1941 - \$300,000.00 was transferred from Surplus to Reserves				
Profit - Before income tax	97,268.65	160,777.20	22,680.54	-54,302.03
After income tax	91,747.20	137,296.74	20,087.19	-54,302.03
Production - Tonnage	173,176	207,598	285,868	235,454
Tons per man	-	3.384	3.70	3.30
Labor costs - per ton	\$ -	1.713	1.675	2.424
Total mining & operating costs including depreciation and depletion - Per ton	3.525	2.900	2.965	4.316
Average selling price per ton	3.493	3.285	2.799	3.736

BY MR. MORRISON - Now the next set we have designated as the Domestic Mines in the North. In this connection the summary is for three companies, and we have three supporting financial statements.

BY MR. FRAWLEY - And that is with respect to what companies?

MR. MORRISON - Banner Coals Limited, Kent Coal Company Limited, and Crown Coal Company Limited.

MR. MORRISON then submits:

EXHIBIT 297 - Financial Statements 1930 - 1944, covering Banner Coals Limited, supported by Exhibit "S" for identification; the Kent Coal Company Limited, supported by Exhibit "T" for identification; and Crown Coal Company Limited, supported by Exhibit "U" for identification.

Banner Coals Limited,

Kent Coal Company Limited, and

Edmonton, Alberta

Crown Coal Company Limited (Selling Agency)

Banner Coals Limited commenced business in June - 1937, taking over the operation of the Penn Mine previously operated by Kelstar Coals Limited. The Capital Coal Company Limited owned the equipment on the lease and Banner acquired the right to use it under a rental arrangement.

Share Capital in the amount of \$20,000.00 was issued and the Mining Rights were valued at a like amount.

Funds were advanced by the Crown Coal Company Limited to finance the development of \$23,971.46 undertaken in the first year. The Company as at the 30th April, 1944, owned plant, houses, etc. at a gross book value of \$29,158.74.

Kent Coal Company Limited was taken over by the present owner as at 16th February, 1934, at which time there was capital outstanding of \$16,006.00. The sum of \$6,000.00 was paid for the entire business and the development account as at that date was made up as follows:-

Share Capital at date of purchase	\$16,006.00
Purchase Price	6,000.00
Additions during period	<u>450.00</u>
Book Value - 30th April, 1935	<u><u>\$22,456.00</u></u>

Subsequent expenditures were made on development account which at the close of the 1944 fiscal period is stated at \$39,157.81.

In the first year of operation plant, equipment, etc. were purchased for cash amounting to \$25,166.97, most of which was financed by Mr. J. B. Starkey. The plant account at 30th April, 1944 had a gross value of \$45,027.62, accounted for by further expenditures being made.

The Crown Coal Company Limited is an affiliated company and is the exclusive selling agency of the Banner and Kent Company.

FINANCIAL POSITION - 1944

	<u>Assets</u>		
	<u>Banner</u>	<u>Kent</u>	<u>Crown</u>
Net Fixed Assets	\$ 54,189.30	\$ 28,939.77	
Net Current Position	<u>1,975.42</u>	<u>3,496.13</u>	<u>\$21,563.57</u>
	<u>\$ 56,164.72</u>	<u>\$ 32,435.90</u>	<u>\$21,563.57</u>
	<u>Liabilities</u>		
Capital	\$ 20,000.00	\$ 16,006.00	\$ 4,690.00
Affiliated companies or Interests	27,109.08	20,885.41	-5,339.90
Reserves	2,186.40	2,867.55	3,982.73
Dominion Government Loans	9,908.67		
Deficit or Surplus	<u>-3,039.43</u>	<u>-7,523.06</u>	<u>18,230.74</u>
	<u>\$ 56,164.72</u>	<u>\$ 32,435.90</u>	<u>\$21,563.57</u>

The above companies have not paid dividends during the periods under review.

Total subsidies finalized to dates mentioned have been received by these companies as follows:-

Banner - 30th April, 1945	\$ 66,649.44
Kent - 31st August, 1945	93,110.50

The above amounts included the subsidies in respect of the fiscal year ended 30th April, 1945.

OPERATING RESULTS

<u>Banner</u> - 1938 - 1942	Loss	\$ -1,935.59
1943	Profit	2,659.89
1944	Loss (after subsidy claimed of \$26,319.03)	<u>-3,708.91</u>
		<u>\$ -2,984.61</u>
 <u>Kent</u> - 1935 to 1939	Loss	\$ -1,638.11
1940 - 1 - 2	Loss	- 740.80
1943	Profit (after subsidy claimed of \$6,900.00)	1,425.25
1944	Loss (after subsidy claimed of \$46,826.05)	<u>-5,045.17</u>
		<u>\$ -5,998.83</u>
 <u>Crown</u> - 1935 to 1942	Loss	\$ - 927.25
1943	Profit	1,419.38
1944	Profit	<u>5,626.14</u>
		<u>\$ 6,118.27</u>

A summarized profit and loss account is shown hereunder:-

<u>Banner</u>	<u>Sales</u>	<u>Mining Cost</u>	<u>Sundry Revenue</u>	<u>Subsidy</u>	<u>Profit or Loss</u>
1938	\$ 1,7470	\$ 1.7639	\$.0121	\$	\$ -.0048
1939	1.8149	1.8362	.0119		-.0094
1940	1.8162	1.8436	.0108		-.0166
1941	2.0870	2.1007	.0105		-.0032
1942	2.1649	2.1902	.0082		-.0171
1943	2.2800	2.2375	.0080		.0505
1944	2.5888	3.1578	.0219	.4795	-.0676

<u>Kent</u>	<u>Sales</u>	<u>Mining Cost</u>	<u>Sundry Revenue</u>	<u>Subsidy</u>	<u>Profit or Loss</u>
1935	\$ 1.869	\$ 1.907	\$.030	\$	\$ -.008
1936	2.015	2.052	.035		-.002
1937	1.938	1.976	.032		-.006
1938	1.795	1.811	.013		-.003
1939	1.712	1.768	.047		-.009
1940	1.831	1.862	.026		-.005
1941	2.033	2.046	.012		-.001
1942	2.100	2.141	.014		-.027
1943	2.511	2.611	.021	.100	.021
1944	2.876	3.920	.026	.913	-.105

A further per ton analysis of the mining cost is undernoted:-

<u>Banner</u>	<u>Labor</u>	<u>Materials</u>	<u>Power</u>	<u>Other Charges</u>	<u>Rentals Equip.</u>	<u>Depn.</u>	<u>Develop- ment</u>	<u>Total</u>
1938	\$ 1.2132	\$.1104	\$.0816	\$.3057	\$.0336	\$.0194	\$	\$ 1.7639
1939	1.1746	.1388	.0566	.3841	.0354	.0167	.0300	1.8362
1940	1.1758	.0939	.0630	.3896	.0388	.0518	.0307	1.8436
1941	1.3658	.1763	.0628	.3846	.0327	.0478	.0307	2.1007
1942	1.4148	.1620	.0532	.4437	.0448	.0412	.0305	2.1902
1943	1.4707	.2022	.0468	.4038	.0493	.0347	.0300	2.2375
1944	1.9706	.2527	.0476	.7613	.0474	.0482	.0300	3.1578

The increase in other charges for the year 1944 is mainly accounted for by an increase in repairs which varied from 4¢ to 12¢ per ton up to 1943 and going up to the figure of 26¢ per ton for 1944.

The per ton cost of Workmen's Compensation Board also increased from rates of 6¢ to 11¢ per ton to the amount of 24¢ per ton in 1944.

	<u>Kent</u>		<u>Repairs, Materials, etc.</u>	<u>Power</u>	<u>Depn.</u>	<u>Develop- ment</u>	<u>Other Charges</u>	<u>Total</u>
	<u>Labor</u>							
1935	\$1.335	\$.228	\$.101	\$	\$	\$.243	\$ 1.907
1936	1.465		.227	.096	.040		.224	2.052
1937	1.366		.274	.086	.026		.224	1.976
1938	1.286		.194	.039	.042		.250	1.811
1939	1.196		.185	.038	.028	.080	.241	1.768
1940	1.273		.239	.042	.032	.078	.198	1.862
1941	1.396		.238	.044	.034	.081	.253	2.046
1942	1.361		.340	.043	.067	.080	.250	2.141
1943	1.600		.378	.064	.066	.080	.423	2.611
1944	2.647		.496	.063	.094	.081	.539	3.920

Workmen's Compensation Board cost is the main factor in the increase in "Other Charges" which for 1944 cost 30¢ per ton as compared with 5¢ in 1940, 9¢ in 1941 and 1942, and 13¢ in 1943.

The production tonnage figures are as follows:-

	<u>Banner</u>	<u>Kent</u>
1935		55,020
1936		59,300
1937		57,814
1938	37,167	64,063
1939	35,352	66,013
1940	32,235	60,193
1941	38,279	58,093
1942	44,657	67,101
1943	52,731	68,926
1944	54,891	47,981
	<u>295,312</u>	<u>604,505</u>

Mr. Morrison then submitted -

EXHIBIT 298 - Financial Statements 1930 - 1944,
Beverly Coal Company Limited,
Edmonton, Alta., Corporate History
and Summary of Operating Experience.

(Supported by Exhibit "V" for identification).

The Beverly Coal Company Limited was incorporated on 8th June, 1933, under the laws of Alberta with a capital of 2,000 shares of no par value.

All of the shares of the Company have been issued and under an agreement dated June 10th, 1933, the Company acquired the property formerly owned by E. I. Clarke for the entire issue of the Capital stock of \$200,000.00.

The coal rights are owned by the Town of Beverly and this Company pays to the Town royalties at the rate of 35¢ per ton on higher grades of coal. For income tax purposes, the Department has admitted a valuation of \$30,519.63 for buildings and equipment out of the foregoing property value of \$200,000.00.

In a letter from the Company's auditors under date of April 4th, 1945, it is stated that the mine would be closed within the next month or two, notice having been already given to the Province of Alberta. This action was necessary because available coal was not worth mining under conditions then obtaining.

FINANCIAL POSITION - 1944.

Assets

Net Property Value	\$ 184,648.71
Net Current Position	<u>33,970.38</u>
	<u><u>\$ 218,619.09</u></u>

Liabilities

Capital	\$ 200,000.00
Surplus	<u>18,619.09</u>
	<u><u>\$ 218,619.09</u></u>

Subsidies received from the Emergency Coal Production Board have been as follows:-

Credited to Surplus May 31, 1944, re 9 months, July, 1943, to March 31, 1944	\$ 38,617.86
Adjustment of depreciation	406.03
Flat rate subsidy at 65¢ per ton, April and May, 1944	<u>1,326.65</u>
Amount finalized to 31st May, 1944	<u><u>\$ 40,350.54</u></u>

OPERATING RESULTS

1934 to 1937	\$ -1,156.89
1938	630.96
1939	2,305.21
1940	5,901.92
1941	6,610.90
1942	4,210.30
1943)	5,449.04
1944) Not including subsidies	<u>-4,866.30</u>
	<u><u>\$ 19,085.14</u></u>

Income taxes paid over the period amount to \$766.23.
For income tax purposes depletion is claimed at 10¢ per ton although not set up in the books of account. This amount is in addition to the royalty paid to the Town of Beverly.

A per ton summary of the profit and loss account is shown hereunder:-

	<u>Sales</u>	<u>Mining Costs</u>	<u>Adm. & Overhead</u>	<u>Sundry Revenue</u>	<u>Profit or Loss</u>
1934	\$ 1.742	\$ 1.669	\$.111	\$.020	\$ -.018
1935	2,370	1.910	.510	.047	-.003
1936	2.131	1.995	.157	.019	-.002
1937	2.344	1.988	.383	.025	-.002
1938	2.252	1.873	.405	.038	.012
1939	2.229	1.905	.312	.028	.040
1940	2.244	1.887	.300	.045	.102
1941	2.262	1.971	.220	.031	.102
1942	2.591	2.320	.239	.043	.075
1943	2.869	2.542	.264	.028	.091
1944	2.990	3.893	.502	.027	-1.378

Subsidies received reduce the loss for 1944 from \$1.378 per ton to \$.154 per ton.

A further analysis of the above mining cost is shown below:

	<u>Labor</u>	<u>Materials & Repairs</u>	<u>Other Charges</u>	<u>Royalties & Taxes</u>	<u>Depn.</u>	<u>Total</u>
1934	\$ 1.189	\$.036	\$.164	\$.198	\$.082	\$ 1.669
1935	1.160	.127	.265	.254	.104	1.910
1936	1.275	.107	.289	.236	.088	1.995
1937	1.295	.079	.277	.234	.103	1.988
1938	1.239	.079	.235	.227	.093	1.873
1939	1.263	.090	.237	.225	.090	1.905
1940	1.238	.091	.243	.223	.092	1.887
1941	1.277	.136	.262	.209	.087	1.971
1942	1.583	.176	.246	.197	.118	2.320
1943	1.672	.170	.381	.213	.106	2.542
1944	2.681	.235	.525	.238	.214	3.893

A summary of the production, shifts and production per Man-Day is undernoted:

	<u>Production</u>	<u>Shifts</u>	<u>Production Per Man-Day</u>
1934	44,709	12,252	3.6
1935	40,587	10,533	3.9
1936	51,336	12,469	4.1
1937	46,738	11,057	4.2
1938	52,300	12,815	4.1
1939	56,825	13,390	4.2
1940	57,729	13,340	4.3
1941	65,067	14,750	4.4
1942	56,237	14,615	3.8
1943	59,901	16,240	3.7
1944	<u>31,556</u>	11,172	2.8
	<u>562,985</u>		

Coal is sold mainly to consumers as is shown by the undernoted: Dealers are allowed a commission of 25¢ per ton.

	<u>Dealers</u>	<u>Consumers</u>
1943 (9 months)	4,539	24,533
1944 (12 months)	7,347	33,800
1945 (4 months)	<u>3,034</u>	<u>12,814</u>
	<u>14,920</u>	<u>71,147</u>

MR. MORRISON Submitted -

EXHIBIT 299 - Financial Statements 1930 - 1944, The Black Diamond Coal Co. Ltd., supported by Exhibit "W" for identification, and The Great West Coal Co. Ltd., supported by Exhibit "X" for identification. - Corporate History and Summary of Operating Expenses.

The Great West Coal Company, Limited, andBlack Diamond Coal Co. Ltd. (Selling Agency)Edmonton, Alta.

The Great West Coal Company Limited has operated for many years in the Edmonton District with a share capital issued for cash of \$127,500.00. It has two fully owned subsidiaries; the Black Diamond Coal Company Limited, which is the retail selling agency, and Mine Securities Limited, to which Great West pays an annual royalty on the lands which are owned by that Company.

On the Balance Sheet of the Great West Company, as at 30th June, 1940, there is noted a contingent liability in respect of a guarantee of the indebtedness of Mine Securities Limited in the amount of \$170,000.00. This amount was reduced by successive instalments and reduced in full during the period ending in June of 1942. We have not received any financial statements of the Mine Securities Company.

As at the close of 1944 fiscal year the investment of Great West in its subsidiaries shows at \$17,304.00.

The combined operating results of the subsidiary companies for the years 1939 to 1944 are as follows:

1939	Loss	\$ -2,123.34
1940	"	- 95.55
1941	"	- 43.22
1942	Profit	3,862.78
1943	"	2,778.68
1944	"	<u>2,891.25</u>
		<u>\$ 7,270.60</u>

FINANCIAL POSITION - 1944

	<u>Assets</u>	<u>Great West</u>	<u>Black Diamond</u>
Net Property Value		\$ 44,318.58	\$ 689.69
Investment in subsidiaries		17,304.00	3,361.50
Net Current position, including other investments		<u>99,587.52</u>	<u>16,563.69</u>
		<u>\$161,210.10</u>	<u>\$ 20,614.88</u>
	<u>Liabilities</u>		
Share Capital		\$127,500.00	\$ 12,304.00
Surplus - Earned		15,483.86	8,310.88
- Capital		<u>18,226.24</u>	<u> </u>
		<u>\$161,210.10</u>	<u>\$ 20,614.88</u>

Subsidies have been earned in the accounts of Great West as follows:

1943	\$ 2,325.00	equal to .033¢ per ton
1944	42,516.25	" " .641¢ " "

OPERATING RESULTS

	<u>Great West</u>	<u>Black Diamond</u> (Selling Agency)
	<u>Before Income Tax</u>	<u>After Income Tax</u>
1930	\$ 8,613.95	\$ 7,250.40
1931	-391.82	-780.94
1932	9,841.25	8,741.25
1933	6,876.72	5,903.40
1934	3,559.26	3,305.42
1935	12,580.86	10,909.08
1936	8,584.15	6,679.77
1937	1,566.10	1,307.75
1938	763.41	595.04
1939	-640.96	-640.96
1940	-3,332.32	-3,332.32
1941	2,909.41	2,309.70
1942	10,677.43	6,262.83
1943	9,393.37	6,556.29
1944	<u>901.03</u>	<u>856.57</u>
	<u>\$ 71,901.84</u>	<u>\$55,923.28</u>
		<u>\$ 2,208.12</u>

Over the fifteen year period on a share capital of \$127,500.00, Great West has paid dividends totalling \$24,500.00. In respect of the year 30th June, 1929, a further dividend of \$20.416.66 was paid.

A summarized per ton analysis before and after income taxes is undernoted:-

	<u>Sales</u>	<u>Mining Cost</u>	<u>Sundry Revenue</u>	<u>Profit or Loss</u>		<u>Subsidy</u>	<u>Result After Subsidy</u>
				<u>Before Taxes</u>	<u>After Taxes</u>		
1930	\$ 2.582	\$ 2.577	\$.095	\$.100	\$.084		
1931	2.261	2.417	.150	-.006	-.011		
1932	2.006	1.995	.105	.116	.103		
1933	1.994	1.986	.079	.087	.075		
1934	2.099	2.180	.129	.048	.045		
1935	1.920	1.875	.108	.153	.133		
1936	2.177	2.180	.107	.104	.081		
1937	1.968	2.062	.114	.020	.017		
1938	2.409	2.517	.120	.012	.009		
1939	2.031	2.151	.110	-.010	-.010		
1940	2.006	2.129	.077	-.046	-.046		
1941	2.205	2.238	.072	.039	.031		
1942	2.369	2.303	.062	.128	.075		
1943	2.626	2.621	.095	.100	.060	.033	.093
1944	3.051	3.788	.110	-.627	-.628	.641	.013

A further per ton analysis of the mining cost shown above is summarized in the following tabulation:-

	<u>Labor</u>	<u>Materials</u>	<u>Royalties</u>	<u>Other Charges</u>	<u>Depn.</u>	<u>Total</u>
1930	\$ 1.920	\$.258	\$.177	\$.152	\$.070	\$ 2.577
1931	1.731	.301	.183	.145	.057	2.417
1932	1.434	.232	.163	.136	.030	1.995
1933	1.358	.238	.169	.195	.026	1.986
1934	1.440	.293	.226	.210	.011	2.180
1935	1.279	.211	.160	.206	.019	1.875
1936	1.499	.247	.181	.221	.032	2.180
1937	1.420	.233	.142	.226	.041	2.062
1938	1.597	.253	.211	.368	.088	2.517
1939	1.395	.197	.148	.321	.090	2.151
1940	1.402	.204	.147	.291	.085	2.129
1941	1.474	.209	.154	.322	.079	2.238
1942	1.549	.222	.177	.299	.056	2.303
1943	1.731	.240	.185	.404	.061	2.621
1944	2.556	.314	.176	.640	.102	3.788

In the sundry revenue of Great West is a credit of \$3,000.00 per annum for most years for supervision of subsidiaries.

Great West produced a total of 476,107 tons from 1930 to 1935 and 287,118 tons from 1936 to 1939. The following is a summary of the tonnage, shifts worked and tons per man-day for the years 1940 to 1944, the only years for which the latter two items are presently available. Total output 1930 - 1944 is 1,131,658 tons.

	<u>Production</u>	<u>Shifts</u>	<u>Production Per Man-Day</u>
1940	72,653	18,779	3.6
1941	75,317	20,156	3.7
1942	83,297	21,189	3.9
1943	70,767	22,125	3.1
1944	<u>66,399</u>	22,766	2.9
	<u><u>368,435</u></u>		

RECAPITULATION

Using the representative years of 1930 - 1935 - 1939 and 1944, certain features of the Company's operations are set out below:-

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Net Property Value \$	5,564.41	14,470.77	39,448.32	44,318.58
Net current position	131,972.54	137,869.24	79,742.36	99,587.52
Surplus	15,539.95	14,843.01	7,193.68	15,483.86
Reserves	10,000.00	25,500.00		
Sales per ton	2.582	1.920	2.031	3.051
Total costs per ton	2.577	1.875	2.151	3.788
Labor Costs	1.920	1.279	1.395	2.556
Production - Tonnage	85,974	82,048	63,071	66,399
Profit or Loss -				
Before Taxes \$	8,613.95	12,580.86	-640.96	901.03

Includes subsidy of \$42,516.25.

MR. MORRISON submits -

EXHIBIT 300 - Financial Statements 1930 - 1944,
Edmonton Collieries, Limited,
Edmonton, Alta., Corporate History
and Summary of Operating Expenses

(Supported by Exhibit "Y" for identification)

Edmonton Collieries Limited was incorporated in the year 1940 with a Share Capital of \$5,000.00, which was subsequently raised to \$7,000.00. Cash was received for all shares issued.

Production subsidies amounting to \$4,780.49 have been received for the year 1944.

FINANCIAL POSITION - 1944

Assets

Net Property Value	\$ 8,846.35
Deferred	765.92
Net Current Position	<u>4,165.49</u>
	<u>\$13,777.76</u>

Liabilities

Capital	\$ 7,000.00
Surplus	<u>6,777.76</u>
	<u>\$13,777.76</u>

OPERATING RESULTS

	<u>Profit Before Taxes</u>	<u>Profit After Taxes</u>	<u>Taxable Income</u>
1941	\$ 876.45	\$ 705.38	\$ 892.15
1942	898.46	667.79	1,281.52
1943	2,768.01	1,932.90	2,783.71
1944	3,013.09	1,801.58	3,028.78 Includes subsidy of 4,780.49
	<u>\$ 7,556.01</u>	<u>\$ 5,107.65</u>	<u>\$ 7,986.17</u>

A summary of the profit and loss account per ton and before taxes is as follows:

	<u>Sales</u>	<u>Mining Cost</u>	<u>Adm.</u>	<u>Sundry Revenue</u>	<u>Subsidy</u>	<u>Profit</u>
1941	\$ 1.758	\$ 1.474	\$.237	\$.018	\$	\$.065
1942	1.935	1.675	.239	.024		.045
1943	2.048	1.714	.224	.008		.118
1944	2.407	2.277	.217	.013	.201	.127

A further analysis of the above mining cost is undernoted:

	<u>Labor</u>	<u>Material</u>	<u>Other Charges</u>	<u>Depn.</u>	<u>Total</u>
1941	\$ 1.200	\$.038	\$.224	\$.012	\$ 1.474
1942	1.548	.051	.248	.028	1.675
1943	1.347	.055	.276	.036	1.714
1944	1.787	.085	.366	.039	2.277

The tonnage for this company is as follows:

1941	Production	13,657 Tons
1942	"	20,118
1943	"	23,467
1944	"	<u>23,818</u>
		<u>81,060</u>

The average production per Man-Day over the foregoing period is 3.935 tons.

As no depletion is charged in the books and the Company pays income taxes based on its book profits, it would appear that the owner of the lease claims the depletion for income tax purposes. Royalties paid are at the rate of 10¢ per ton and are included in the cost of "Other Charges".

Sales are made both direct to the consumer and through a wholesale and retail dealer.

Mr. Morrison then submitted -

EXHIBIT 301 - Financial Statements 1930 - 1944,
Lakeside Coals Limited, Edmonton,
Alta., - Corporate History and
Summary of Operating Experience.

(Supported by Exhibit "Z" for identification)

Lakeside Coals Limited operate the Robb and Wabamun mines in the Edmonton field. The share capital of the Company is \$634,276.00 which was issued in varying dates from 1917 to 1933, the consideration for which being cash or assets and rights acquired.

FINANCIAL POSITION - 1944

<u>Assets</u>	
Net Property Value	\$ 452,685.28
Deferred	4,231.85
Net current position	<u>15,851.66</u>
	<u>\$ 472,768.79</u>
<u>Liabilities</u>	
Share Capital	\$ 634,276.00
Deficit	<u>-161,507.21</u>
	<u>\$ 472,768.79</u>

During the year 1943 depletion was set up at 10¢ per ton for all prior years in the amount of \$170,768.50, and the accounts of 1944 included a charge of 10¢ per ton for depletion.

On coal shipped to Ontario in the years 1930 to 1942 inclusive freight subventions were paid by the Government on a total of 102,906 tons at \$2.50 per ton or \$257,265.00.

Cost of living bonuses were received from 1st September, 1941, to February 15th, 1944, amounting to \$24,436.26.

In the year ended 31st March, 1944, a production subsidy is shown as a credit to surplus of \$29,669.65. After the close of the accounts, however, a total of \$65,286.02 was received in respect of subsidy for the 1944 fiscal year.

OPERATING RESULTS - 1930 to 1944

In only one year was income tax payable, and that was for the year 1943, and amounted to \$660.11.

The operating results are shown as per the books of the Company and adjusted to include depletion set up for all years in 1943.

	<u>Profit or Loss Per Books</u>	<u>Depletion at 10¢ per ton</u>	<u>Profit or Loss After Depletion</u>
1930	\$ 6,573.90	¢ 6,968.60	¢ -394.70
1931	-1,145.50	7,278.00	-8,423.50
1932	6,611.10	6,701.30	- 90.20
1933	-13,618.12	5,790.90	-19,409.02
1934	8,209.90	8,172.90	37.00
1935	6,469.38	6,473.40	- 4.02
1936	31.01	6,403.50	- 6,372.49
1937	- 4,021.11	6,518.10	-10,539.21
1938	- 4,657.77	6,181.10	-10,838.87
1939	- 8,918.86	5,817.50	-14,736.36
1940	- 6,706.25	6,758.50	-13,464.75
1941	524.08	9,478.40	- 8,954.32
1942	14,226.03	14,456.90	- 230.87
1943	16,280.05	15,404.30	875.75
1944	- 6,476.52	Amount recorded in books	- 6,476.52
	<u>\$ 13,381.32</u>	<u>¢ 112,403.40</u>	<u>¢- 99,022.08</u>

The year 1944 has also been adjusted to include the final subsidy received of ¢65,286.02.

A summarized profit and loss account per ton is shown below including depletion for all years at 10¢ per ton and full Government subsidy for the year 1944.

	<u>Sales</u>	<u>Mining Cost</u>	<u>Adm.</u>	<u>Sundry Revenue</u>	<u>Subsidy</u>	<u>Profit or Loss Before Taxes</u>
1930	\$ 2.704	\$ 2.424	\$.329	\$.043	\$	\$ - .006
1931	2.498	2.374	.367	.127		- .116
1932	2.424	2.164	.378	.116		- .002
1933	2.204	2.202	.454	.117		- .335
1934	2.123	1.920	.325	.123		.001
1935	2.299	1.980	.434	.115		-
1936	2.243	2.010	.361	.129		- .009
1937	2.195	2.096	.354	.093		- .162
1938	2.366	2.316	.329	.104		- .175
1939	2.302	2.287	.365	.097		- .255
1940	2.147	2.099	.327	.080		- .199
1941	2.259	2.152	.271	.070		- .094
1942	2.584	2.441	.213	.068		- .002
1943	3.080	2.861	.196	.082		.005
1944	3.661	4.163	.227	.060	.517	- .152

Ninety-eight percent of the coal sold is shipped direct by Lakeside to the purchaser (consumer) with the remainder sold to dealers.

A further analysis per ton of the mining costs is tabulated below:

	<u>Labor</u>	<u>Material</u>	<u>Other Charges</u>	<u>Depn.</u>	<u>Development</u>	<u>Depletion</u>	<u>Total</u>
1930	\$ 1.760	\$.149	\$.356	\$.044	\$.015	\$.100	\$ 2.424
1931	1.790	.123	.361			.100	2.374
1932	1.538	.092	.331	.083	.020	.100	2.164
1933	1.338	.276	.368	.097	.023	.100	2.202
1934	1.208	.257	.267	.069	.019	.100	1.920
1935	1.166	.287	.315	.089	.023	.100	1.980
1936	1.280	.283	.330	.093	.024	.100	2.110
1937	1.288	.266	.327	.092	.023	.100	2.096
1938	1.381	.257	.455	.098	.025	.100	2.316
1939	1.323	.273	.488	.103		.100	2.287
1940	1.245	.228	.436	.090		.100	2.099
1941	1.324	.275	.389	.064		.100	2.152
1942	1.517	.205	.368	.190	.061	.100	2.441
1943	1.871	.282	.458	.193	.057	.100	2.961
1944	2.242	.564	.861	.326	.070	.100	4.163

Amounts paid for Power and W. C. Board are the main reasons for the increase in the 1944 "Other Charges".

A summary of the production, shifts and tons per man-day follows:-

	<u>Total Production</u>	<u>Shifts</u>		<u>Tons per Man-Day</u>	
		<u>Wabamun</u>	<u>Robb</u>	<u>Wabamun</u>	<u>Robb</u>
1933	57,909	8,180	11,398	4.24	2.04
1934	81,729	9,140	14,395	4.87	2.56
1935	64,734	6,356	11,372	4.65	3.10
1936	64,035	7,335	13,739	4.17	2.43
1937	65,181	8,404	10,634	4.05	2.92
1938	61,811	8,016	9,634	3.58	3.44
1939	58,175	7,042	9,418	4.05	3.15
1940	67,585	9,073	9,638	4.39	2.88
1941	94,784	11,131	13,408	4.55	3.29
1942	144,569	15,450	20,307	4.32	3.83
1943	154,043	13,003	32,439	4.16	3.12
1944	<u>126,156</u>	15,527	29,700	3.51	2.41
	<u><u>1,040,711</u></u>				

RECAPITULATION

Using the representative years of 1930, 1935, 1939 and 1944, certain features of the Company's operations are set out below:-

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Net Property Value	\$474,866.19	\$548,366.12	\$510,290.40	\$452,685.28
Net Current Position	15,039.82	2,122.81	- 7,636.85	51,468.03
Loss for year	394.70	4.02	14,736.36	6,476.52
Deficit	25,122.04	49,009.07	96,513.32	125,890.84
Average Selling Price - per ton	2.704	2.299	2.302	3.661
Mining & Operating costs including depre- ciation and depletion - per ton	2.753	2.414	2.652	4.390
Labor Costs - per ton	1.760	1.166	1.323	2.242
Production - Tonnage	69,686	64,734	58,175	126,156
" - in tons per man-day				
Wabamun	-	4.65	4.05	3.51
Robb	-	3.10	3.15	2.41

To all the figures where depletion is applicable, adjustments have been made and the subsidy received for 1944 has also been taken into account.

Mr. Morrison presents -

EXHIBIT 302 - Financial Statements 1930 - 1944,
Red Flame Coal Company Limited,
Camrose, Alta., - Corporate History
and Summary of Operating Experience

(Supported by Exhibit "AA" for identification)

The Red Flame Company commenced operations on 1st August 1940, with an authorized capital of \$20,000.00, of which \$13,500.00 was issued; \$4,502.00 for cash and \$8,998.00 for assets acquired less certain liabilities assumed.

In June 1941 the Company acquired an adjacent mine known as the "Banner Mine" for a consideration of \$4,500.00 payable \$1,500.00 in cash and the balance in yearly instalments of \$1,000.00 each. The coal rights were also acquired for \$2,500.00 payable at the rate of 5¢ per ton on coal raised from the property.

FINANCIAL POSITION - 1944

Assets

Net Property Value	\$ 9,014.70
Deferred	1,798.06
Current, including investments	<u>1,167.69</u>
	<u><u>\$11,980.54</u></u>

Liabilities

Capital	\$13,500.00
Less Deficit	<u>1,519.46</u>
	<u><u>\$11,980.54</u></u>

A dividend was paid in the year 1944 at the rate of 20%, or a total amount of \$2,700.00.

A subsidy claim of \$2,966.16 has been made in respect of the year 1944, but is not included in the above financial position.

OPERATING RESULTS

	<u>Before Income Tax</u>	<u>After Income Tax</u>
1941	\$ - 270.09	\$ - 270.09
1942	914.92	548.95
1943	10,382.17	5,615.06
1944	- 646.04	- 646.04
	<u>\$ 10,380.96</u>	<u>\$ 5,247.88</u>

After adjustment
of subsidy

A per ton analysis of the profit and loss account is as follows:

	<u>Sales</u>	<u>Costs</u>	<u>Subsidy</u>	<u>Profit or Loss Before Taxes</u>
1941	\$ 2.050	\$ 2.066	\$	\$ - .016
1942	2.831	2.791		.040
1943	2.657	2.416	.041	.282
1944	3.021	3.148	.107	- .020

A further analysis of the above costs is shown hereunder:

	<u>Labor</u>	<u>Hauling</u>	<u>Other Charges</u>	<u>Dep.</u>	<u>Depletion</u>	<u>Total</u>
1941	\$ 1.204	\$.138	\$.524	\$.103	\$.097	\$ 2.066
1942	1.649	.189	.710	.122	.121	2.791
1943	1.373	.171	.692	.080	.100	2.416
1944	1.974	.230	.743	.101	.100	3.148

The production, shifts and production per man-day is as follows:

	<u>Production</u>	<u>Shifts</u>	<u>Production Per Man-Day</u>
1941	17,089	5,091	3.40
1942	23,041	7,782	2.98
1943	36,825	11,675	3.15
1944	<u>33,030</u>	<u>11,225</u>	<u>2.94</u>
	<u>109,985</u>	<u>35,773</u>	<u>3.08</u>

Mr. Morrison submits -

EXHIBIT 303 - Financial Statements 1930 - 1944,
Atlas Coal Company Limited,
Drumheller, Alta., supported by
Exhibit "BB" for identification;
and Regal Coal Company, Limited,
Drumheller, Alta., supported by
Exhibit "CC" for identification;
Corporate History and Summary of
Operating Experience.

Atlas Coal Company Limited - and - Regal Coal Company Limited
East Coulee - and - Kneehill, Alberta.

The following information is extracted from a submission made on the operations of these two companies by their Auditors.

The Atlas Coal Company Limited was incorporated under date of March 31st, 1930, as a private company, under a Dominion Charter, with an authorized Capital of \$50,000.00, divided into 500 shares of \$100.00 each. These shares were issued to the subscribing shareholders in consideration of money expended by them for development and leases.

The powers of the Atlas Coal Company Limited, cited in the Letters Patent are comprehensive, but the activities of the Company have been confined to the business of producing and selling coal and the investment of surplus funds in bonds and shares. During the fiscal periods prior to June 30, 1932, the coal operations were conducted solely by the Atlas Coal Company Limited but in all subsequent fiscal periods was carried on in conjunction with the Regal Coal Company Limited, in accordance with the terms of agreements between the two companies, the details of which will be subsequently submitted.

The Regal Coal Company Limited was incorporated under date of April 23, 1932, under the provisions of the Companies Act (Alberta), with an authorized Capital of \$20,000.00 divided into 20,000 shares without nominal or par value, with a maximum price of \$1.00 per share governing the issue of shares. The Authorized Capital was fully subscribed and paid for in cash.

The Atlas Coal Company Limited operated the property known as the "East Coulee Mine".

Operations of the "East Coulee Mine" continued for the years 1930 to 1936 inclusive. During the latter years of operation the cost of recovering coal became increasingly expensive and it was estimated that there was not a sufficient quantity of coal remaining in the lease to justify the working of the mine for another season. As a consequence the mine was abandoned at the close of the fiscal year ended June 30, 1936.

Operations of the Regal Coal Company Limited from the date of incorporation to June 30, 1936, were confined entirely to marketing a portion of the output of the "East Coulee Mine".

With the abandonment of the "East Coulee Mine" under date of June 30, 1936, by the Atlas Coal Company Limited, the management of the two Companies deemed it advisable to change operating policy. The changes resulted in the following:

- (a) The Atlas Coal Company Limited became a non-operating Company owning all the fixed Assets and renting these assets by agreement to the Regal Coal Company Limited.
- (b) The Regal Coal Company Limited became the operating and sales Company.

Under date of July 2, 1934, the Atlas Coal Company Limited acquired a coal lease near Kneehill, Alberta, comprising approximately 1,000 acres located in Sections 4, 5, and 9, Township 29, Range 20, West of the 4th Meridian. Upon assuming active operations the title to this lease was transferred to the Regal Coal Company Limited.

Under date of February 24, 1936, the Regal Coal Company Limited leased from the Canadian Pacific Railway Company as from January 1, 1936, the right to mine coal underlying 1,700 acres of Township 27, Range 18 and 19, West of the 4th Meridian. This mine has been developed to produce 1,250 tons per day and production from this mine has constituted the major source of income for the two Companies. As the Regal Coal Company Limited

was without sufficient funds to adequately finance mining and development operations and further, to conform with management policy as detailed above, this Company entered into an agreement with Atlas Coal Company Limited whereby:

"The Atlas Coal Company Limited agreed to furnish the money necessary for the opening up of a mine on the said lands and to furnish all the machinery, tools and necessary equipment for operating the said mine and for handling and preparing for market the coal therefrom, and to also furnish the money for operating expenses, and that all monies advanced are repayable without interest from the sale of coal mined from the said lands, and that for the use of the plant and equipment and the supplying without interest the necessary monies, the Regal Coal Company Limited will pay to the Atlas Coal Company Limited three-quarters of the Net Profits derived from the operating of the said mine and that the Regal Coal Company Limited will furnish to the Atlas Coal Company Limited a complete and detailed statement of all monies received and disbursed."

The details and requirements of the above agreement have been fulfilled annually up to and including the fiscal period ended March 31, 1944.

SUMMARY REMARKS RELATIVE TO GENERAL COMMENT

From a perusal of the above general comment it will be observed that:

- (1) For the period from 1930 to 1936 the Atlas Coal Company Limited was the operating entity insofar as actual coal production was concerned and that for the years 1932 to 1936 the Regal Coal Company Limited operated as a selling agency only.
- (2) For the period 1937 to 1944 the Regal Coal Company Limited conducted active mining operations and the Atlas Coal Company Limited was inactive, merely owning and renting the equipment used by the Regal Coal Company Limited.

- (3) That from an active mining viewpoint during the years 1930 to 1944 there has in each year been only one Company in operation.

FINANCIAL POSITION - 1944

	<u>Assets</u>	
	<u>Atlas</u>	<u>Regal</u>
Net Property Values	\$ 243,274.36	\$ 55,697.36
Deferred	1,660.24	750.15
Net Current Position	<u>275,834.93</u>	<u>181,685.77</u>
	<u>\$ 520,769.53</u>	<u>\$ 238,133.28</u>
	<u>Liabilities</u>	
Share Capital	\$ 50,000.00	\$ 20,000.00
Reserves		129,276.39
Surplus	<u>470,769.53</u>	<u>88,856.89</u>
	<u>\$ 520,769.53</u>	<u>\$ 238,133.28</u>

The Balance Sheet of Atlas shows an increase of Buildings, Plant, etc., of \$397,835.68, when the 1930 value of \$127,877.10 is compared with the 1944 figure of \$525,712.78.

The Regal Company shows development costs of \$48,187.10 at the Second East Coulee mine which was leased from the Canadian Pacific Railway Company, and development cost of \$47,121.74 at the Commander Mine up to the year 1944.

Atlas paid a dividend of \$100,000.00 in 1932 and a further dividend of \$251,329.41 in 1943. No dividends have been paid by the Regal Company.

OPERATING RESULTS

A summary of the net operations of the two Companies is tabulated below:

A T L A S

	<u>Profit Before Taxes</u>	<u>Profit After Taxes</u>	<u>Taxable Income</u>
1930	\$ 122,036.19	\$ 122,036.19	\$ 127,237.50
1931	123,999.20	121,509.33	126,051.60
1932	93,233.73	89,514.04	98,040.31
1933	16,082.47	13,162.44	23,342.03
1934	3,920.88	2,720.26	7,590.50
1935	4,786.47	2,760.69	5,920.06
1936	11,838.86	9,578.65	13,077.70
1937	- 2,431.72	- 2,431.72	- 1,711.60
1938	31,620.65	29,627.34	32,467.15
1939	78,069.34	73,915.71	71,185.92
1940	90,979.66	54,830.65	84,062.66
1941	84,865.51	53,139.53	81,458.03
1942	146,271.52	78,771.32	141,875.07
1943	168,807.95	83,807.95	165,929.34
1944	73,161.37	45,161.37	70,110.43
	<u>\$1,047,241.88</u>	<u>\$ 778,103.75</u>	<u>\$1,046,636.70</u>

R E G A L

	<u>Profit Before Taxes</u>	<u>Profit After Taxes</u>	<u>Taxable Income</u>
1933	\$ 7,851.90	\$ 6,596.33	\$ 7,851.90
1934	5,134.32	4,247.16	5,134.32
1935	565.40	398.85	565.40
1936	697.44	592.82	697.44
1937	-20,365.87	-20,365.87	-20,196.76
1938	4,440.50	3,543.39	4,487.40
1939	15,141.79	12,225.52	15,247.79
1940	20,585.51	13,008.74	20,621.51
1941	19,608.05	11,864.59	19,608.05
1942	36,665.20	17,165.20	35,665.20
1943	49,141.56	24,141.56	49,578.69
1944	23,558.16	13,558.16	23,779.79
	<u>\$ 163,023.96</u>	<u>\$ 86,976.45</u>	<u>\$ 163,040.73</u>

The operating results on a per ton basis of the Atlas Company 1930 to 1936, and Regal 1937 to 1944, are tabulated below:

Atlas - (Operating Mines 1930 - 1936)

	<u>Sales</u>	<u>Mining Cost & Adm.</u>	<u>Operating Profit</u>	<u>Sundry Revenue & Expenses</u>	<u>Payments to Regal Co.</u>	<u>Profit Before Taxes</u>
1930	\$3.155	\$2.071	\$ 1.084	\$.017	\$	\$ 1.101
1931	2.896	1.768	1.128	.041		1.169
1932	2.697	1.800	.897	.054		.951
1933	2.715	2.486	.229	.009	.084	.154
1934	2.474	2.475	- .001	.101	.059	.041
1935	2.466	2.516	.050	.099	.012	.037
1936	2.464	2.452	.012	.096	.021	.087

R E G A L (Operating Mines, Commander and East Coulee - C.P.R. 1937-1944)

	<u>Sales</u>		<u>Mining Costs</u>	
	<u>Commander</u>	<u>East Coulee</u>	<u>Commander</u>	<u>East Coulee</u>
1937	\$ 2.489	\$ 2.553	\$ 2.596	\$ 2.205
1938	2.605	2.759	2.546	1.757
1939	2.741	2.922	2.662	1.664
1940	2.741	3.008	2.213	1.697
1941	2.637	2.972	2.058	1.693
1942	3.004	3.120	2.459	1.657
1943	3.657	3.340	3.604	1.779
1944	4.094	3.567	3.931	2.296

R E G A L - (Continued)

	<u>Combined Operating Profit</u>	<u>Adm. & Selling Expense</u>	<u>Payments to Atlas (x)</u>	<u>Profit Before Taxes</u>
1937	\$.260	\$.493	\$	\$ - .233
1938	.851	.464	.353	.034
1939	1.123	.419	.594	.110
1940	1.212	.387	.684	.141
1941	1.199	.469	.614	.116
1942	1.366	.389	.800	.177
1943	1.431	.323	.901	.207
1944	1.215	.365	.713	.137

Depletion at the rate of 10¢ per ton is included in the mining costs of the Atlas Company for 1933, 1934, 1935 and 1936, and for all the years Regal operated the collieries.

(x) The payments by the Regal Company to Atlas are in accordance with the agreement, whereby the Atlas Company rented the Fixed Assets to the Regal Company.

(x) Continued

The amounts involved are as follows:

1938	\$ 46,530.01
1939	82,185.21
1940	100,104.80
1941	103,778.69
1942	165,515.93
1943	212,001.73
1944	<u>122,066.87</u>
	<u>\$ 832,183.24</u>

No production subsidies have been received by either Company during the period under review.

MINING COSTS - Atlas

	Labor Material & Power	General Charges	Development & Depn.	Depletion	Total
1930	\$ 1.263	\$.639	\$.169	\$	\$ 2.071
1931	.978	.605	.185		1.768
1932	1.019	.477	.304		1.800
1933	1.030	1.157	.199	.100	2.486
1934	1.059	1.098	.218	.100	2.475
1935	1.174	1.098	.144	.100	2.516
1936	1.427	.816	.109	.100	2.452

MINING COSTS - Regal -- Knochhill Mine (Commander)

	Labor Material & Power	General Charges	Development & Depn.	Depletion	Total
1937	\$ 2.192	\$.265	\$.039	\$.100	\$ 2.596
1938	2.141	.254	.051	.100	2.546
1939	2.189	.305	.068	.100	2.662
1940	1.787	.270	.056	.100	2.213
1941	1.599	.305	.054	.100	2.058
1942	2.031	.279	.049	.100	2.459
1943	2.961	.353	.190	.100	3.604
1944	2.388	.898	.545	.100	3.931

MINING COSTS - Regal -- East Coulee (C.P.R.)

	<u>Labor Material & Power</u>	<u>General Charges</u>	<u>Development & Depn.</u>	<u>Depletion</u>	<u>Total</u>
1937	\$ 1.599	\$.437	\$.069	\$.100	\$ 2.205
1938	1.280	.334	.043	.100	1.757
1939	1.239	.286	.039	.100	1.664
1940	1.198	.361	.038	.100	1.697
1941	1.171	.389	.033	.100	1.693
1942	1.213	.318	.026	.100	1.657
1943	1.339	.318	.022	.100	1.779
1944	1.780	.386	.030	.100	2.296

PRODUCTION, SHIFTS and TONS PER MAN-DAY

<u>A T L A S</u>				<u>R E G A L</u>			
<u>Production</u>		<u>Shifts</u>	<u>Tons Per Man-Day</u>	<u>Production</u>		<u>Shifts</u>	<u>Tons Per Man-Day</u>
930	110,789	15,994	6.9	1937	87,172	22,637	3.9
931	106,100	12,629	8.4	1938	131,841	24,994	5.3
932	98,095	11,688	8.4	1939	138,318	23,234	6.
933	104,418	13,051	8.	1940	146,432	22,724	6.4
934	94,707	13,201	7.2	1941	169,111	25,426	6.6
935	105,234	16,841	6.2	1942	207,032	30,508	6.8
936	137,277	27,528	5.	1943	235,419	39,711	5.9
				1944	171,308	39,671	4.3
<u>756,620</u>				<u>1,286,633</u>			

RECAPITULATION

For the years 1930, 1935, 1939 and 1944, the following are comparative figures of certain aspects of the operations of the Company:-

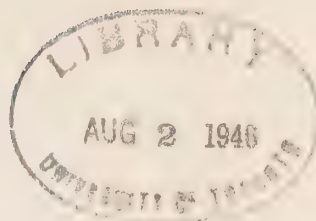
	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Valuation of Properties (Net)				
- Atlas Co.	\$159,332.95	\$ 81,346.75	\$ 82,400.45	\$243,274.36
- Regal Co.	-	13.10	7,866.66	55,697.36
Total	<u>\$159,332.95</u>	<u>\$ 81,359.85</u>	<u>\$ 90,267.11</u>	<u>\$298,971.72</u>
Net Current Position				
- Atlas Co.	\$ -9,904.28	\$217,038.39	\$368,015.57	\$257,834.93
- Regal Co.	-	11,421.99	4,747.61	181,685.77
Total	<u>\$ -9,904.28</u>	<u>\$228,460.38</u>	<u>\$372,763.18</u>	<u>\$457,520.70</u>
Surplus				
- Atlas Co.	\$122,493.20	\$253,260.35	\$400,876.14	\$470,769.53
- Regal Co.	-	11,408.89	12,628.27	88,856.89
Total	<u>\$122,493.20</u>	<u>\$264,669.24</u>	<u>\$413,504.41</u>	<u>\$559,626.42</u>
Reserves				
- Regal Co.	-	26.20	-	\$129,276.39
Annual Profit Before Inc. Tax				
- Atlas Co.	\$122,036.19	\$ 4,786.47	\$ 78,069.34	\$ 73,161.37
- Regal Co.	-	565.40	15,141.79	23,558.16
Total	<u>\$122,036.19</u>	<u>\$ 5,351.87</u>	<u>\$ 93,211.13</u>	<u>\$ 96,719.53</u>
After Income Tax				
- Atlas Co.	\$122,036.19	\$ 2,760.69	\$ 73,915.71	\$ 45,161.37
- Regal Co.	-	398.85	12,225.52	13,558.16
Total	<u>\$122,036.19</u>	<u>\$ 3,159.54</u>	<u>\$ 86,141.23</u>	<u>\$ 58,719.53</u>
Production-Tonnage				
- Atlas Co.	110,789	105,234	-	-
- Regal Co.	-	-	138,318	171,308
Tons per Man-Day				
- Atlas Co.	6.9	6.2	-	-
- Regal Co.	-	-	6.0	4.3

ROYAL COMMISSION ON COAL

OTTAWA, Ont.

April, 1946

VOLUME LXIV



Witness

Pages

K. J. Morrison 5903 - 5995

EXHIBITS

No.

Page

- 304 - Financial Statements 1930-1944, Brilliant Coal Company Limited, Drumheller, Alta. - Corporate History and Summary of Operating Experience 5903
- 305 - Financial Statements 1930-1944, Hy-Grade Coal Mining Company Ltd., Drumheller, Alta. - Corporate History, etc. .. 5907
- 306 - Financial Statements 1930-1944, Midland Coal Mining Co. Ltd., Drumheller, Alta. - Corporate History, etc. 5909
- 307 - Financial Statements 1930-1944, Monarch Coal Mining Co. Ltd., Drumheller, Alta. - Corporate History, etc. 5917
- 308 - Financial Statements 1930-1944, Murray Collieries Limited, East Coulee, Alta. Corporate History, etc. 5921
- 309 - Financial Statements 1930-1944, Newcastle Collieries, Drumheller, Alta., etc. 5926
- 310 - Financial Statements 1930-1944, Red Deer Valley Coal Company Limited, Drumheller, Alta. - Corporate History, etc. 5930
- 311 - Financial Statements 1930-1944, Rosedale Collieries Limited, Rosedale, Alta. - Etc. ... 5934
- 312 - Financial Statements 1930-1944, Western Gem and Jewel Collieries Limited, Cambridge, Alta. - Etc. 5939
- 313 - Financial Statements 1930-1944, Alexo Coal Company Limited, Alexo, Alta. - Corporate History and Summary of Operating Experience 5943

EXHIBITS (Continued)

<u>No.</u>	<u>Page</u>
314 - Financial Statements 1930-1944, Big Horn and Saunders Creek Collieries Limited, Aaunders Creek, Alta. - Etc.	5946
315 - Financial Statements 1930-1944, Foothills Collieries Limited, Foothills, Alta., etc.	5949
316 - Financial Statements 1930-1944, Lethbridge Collieries Limited, Lethbridge, Alta. - Corporate History and Summary of Operating Experience	5952
317 - Financial Statements 1930-1944, Birnwel Coal Limited, Taber, Alta.	5955
318 - Financial Statements 1930-1944, Camrose Collieries Limited, Camrose, Alberta	5960
319 - Financial Statements 1930-1944, Castor Creek Collieries Limited, Castor, Alta.	5965
320 - Financial Statements 1930-1944, Continental Coal Corporation Ltd., Grassy Lake, Alta.	5968
321 - Financial Statements 1930-1944, Dodds Coal Mine, Dodds, Alta.	5970
322 - Financial Statements 1930-1944, Sheerness Coal Company Limited, Sheerness, Alta.	5972
323 - Financial Statements 1930-1944, Tofield Coal Company Limited, Tofield, Alta.	5978
324 - Financial Statements 1930-1944, Western Ventures Limited, Taber, Alta.	5980
325 - Financial Statements 1930-1944, Canadian Collieries (Dunsmuir) Limited, and Subsidiaries, Nanaimo, B.C. - Corporate History and Summary of Operating Experience	5982
326 - Financial Statements 1930-1944, Tulameen Collieries Limited, Tulameen, B.C. - Corporate History and Summary of Operating Experience	5994

Mr. Morrison submits -

EXHIBIT 304 - Financial Statements 1930 - 1944,
Brilliant Coal Co. Limited,
Drumheller, Alta., - Corporate
History and Summary of Operating
Experience.

(Supported by Exhibit "DD" for identification)

This Company was organized as an incorporated Company during the latter part of 1933 with a share capital of \$25,000.00. The limited Company was dissolved after the close of its financial year in 1936, operating from that time on as a partnership with six partners, five of whom have a 19% interest each and one the remaining 5%. Three of the partners reside in Drumheller and three in Weston, Ontario.

FINANCIAL POSITION - 1944

Assets

Net Property Value	\$ 62,750.35
Deferred and Refundable Taxes	19,490.03
Net Current Position including investments	<u>144,348.40</u>
	<u>\$226,588.78</u>

Liabilities

Proprietors' Equity	<u>\$226,588.78</u>
---------------------	---------------------

The plant and equipment and other fixed assets were valued in 1934 at \$3,281.16. Net additions totalling \$117,695.47 have been made, bringing the capital asset values, other than coal leases, to \$120,977.63. The original lease value stood at \$15,000.00 on incorporation.

OPERATING RESULTS

		<u>Profit before</u> <u>Income Tax</u>	<u>Profit after</u> <u>Income Tax</u>	<u>Partners</u> <u>Drawings</u>
1934	Limited Company	\$ 849.57	\$ 849.57	
1935	" "	5,585.30	4,485.30	
1936	" "	28,320.56	22,320.56	
1937	Partnership	39,285.02	Individual Tax	
1938	"	40,415.90	" "	\$ 15,866.52
1939	"	38,884.34	" "	15,789.45
1940	"	41,979.35	145,875.39 E.P.T. only	21,052.65
1941	"	10,863.66		26,351.78
1942	"	36,684.98		11,873.35
1943	"	119,388.87		31,578.95
1944	"	<u>53,551.30</u>	<u>45,802.57</u> Do.	<u>14,369.67</u>
		<u>\$415,808.85</u>	<u>\$219,353.39</u>	<u>\$136,882.37</u>

Per ton summary of the profit and loss account is tabulated below:

	<u>Sales</u>	<u>Sundry</u> <u>Revenue</u>	<u>Mining</u> <u>Costs</u>	<u>Profit</u> <u>Before Taxes</u>	<u>Profit</u> <u>After Taxes</u>
1934	\$ 2.619	\$.040	\$ 2.630	\$.029	\$.029
1935	2.660	.037	2.573	.124	.099
1936	2.650	.033	2.245	.438	.345
1937	2.660	.034	2.096	.598	.598
1938	2.798	.027	2.262	.563	.563
1939	2.897	.050	2.360	.587	.587
1940	2.872	.047	2.301	.618	.618 See below
1941	2.820	.046	2.657	.209	.209 Do.
1942	3.222	.061	2.771	.512	.512 Do.
1943	3.351	.058	2.451	.958	.452 Do.
1944	3.747	.105	3.310	.542	.464

For the first three years, 1934 to 1936, this operation was a limited company and subject to tax as such; for the years 1937 to 1939 income taxes were paid by the partners individually. From 1940 on the business was subject to Excise Profit Tax, and the liability for the years 1940 to 1943 was set up in 1943.

Depletion has been set up in the account as follows:-

1934	10¢ per ton
1935	10¢ " "
1936	.08¢ " "
1943	10¢ " "
1944	10¢ " "

The Brilliant Company has not received any production subsidies from the Emergency Fuel Board.

MINING COSTS

An analysis of the mining cost is as follows:-

	Labor Material & Power	General Charges		Depn. & Depletion	Total
1934	\$ 1.797	\$.722	(x)	\$.111	\$ 2.630
1935	1.713	.749	(x)	.111	2.573
1936	1.451	.647	(x)	.147	2.245
1937	1.451	.573		.072	2.096
1938	1.470	.716		.076	2.262
1939	1.515	.735		.110	2.360
1940	1.536	.653		.112	2.301
1941	1.698	.790		.169	2.657
1942	1.975	.665		.131	2.771
1943	1.737	.526	(x)	.188	2.451
1944	2.249	.840	(x)	.221	3.310

Depletion is included as a charge in the years marked (x).

PRODUCTION and PER MAN-DAY OUTPUT

	<u>Production Tonnage</u>	<u>Per Man-Day Output</u>
1934	29,086	3.728
1935	45,201	3.824
1936	64,698	3.845
1937	65,654	4.702
1938	71,764	4.713
1939	66,160	3.706
1940	67,987	4.822
1941	51,994	4.360
1942	71,573	4.156
1943	124,636	5.045
1944	98,851	4.426
1945	<u>101,754</u>	4.617
	<u>859,358</u>	

RECAPITULATION

The undernoted are comparative figures of certain aspects of the operations of the Company for the years 1935 - 1939 and 1944:-

	<u>1935</u>	<u>1939</u>	<u>1944</u>
Valuation of Properties (Net)	\$ 30,688.36	\$ 51,194.44	\$ 62,750.35
Net Current Position	- 1,776.34	85,211.74	144,348.40
Surplus and/or Equity	29,566.79	137,932.29	226,588.78
Profit - Before Income Tax	5,585.30	38,884.34	53,551.30
Production - Tonnage	45,201	66,160	98,851
- Tons per man	3.824	3.706	4.426
Labor costs per ton	1.501	1.358	2.003
Total mining and operation costs, including depreciation and depletion @ 10¢ per ton - Per ton	2.573	2.460	3.310
Average selling price Per ton	2.660	2.897	3.747

Mr. Morrison submits -

EXHIBIT 305 - Financial Statements 1930 - 1944,
Hy-Grade Coal Mining Company Limited,
Drumheller, Alta. - Corporate History
and summary of Operating Experience.

Supported by Exhibit "EE" for identification).

This Company was incorporated and commenced business on the 16th of July, 1940, with an authorized capital of \$24,000.00, all of which is issued.

The leases, plant, etc., were leased from the Hy-Grade Coal Company Limited on a royalty basis until May, of 1943, when this Company exercised its option and purchased the assets of the Hy-Grade Coal Company Limited for \$57,961.19.

FINANCIAL POSITION - 1944

Assets

Net Property Values	\$51,727.04
Deferred	4,641.87
Current	<u>- 768.57</u>
	<u>\$55,600.34</u>

Liabilities

Share Capital	\$24,000.00
Deferred Capital Liability	34,524.37
Deficit	<u>- 2,924.03</u>
	<u>\$55,600.34</u>

The coal leases are valued at \$35,772.44 out of a gross asset value in 1944 of \$79,425.70.

OPERATING RESULTS

The operations of the Company have resulted in the following profits or losses:

1941	\$ - 2,333.38
1942	- 18.43
1943	7,674.24
1944	- 2,520.84

Depletion has been included in the accounts at 1¢ a ton for 1943 and for 1944 at 10¢ a ton.

The foregoing figures for 1944 are after a production subsidy of \$43,064.03 has been credited.

A summary per ton of the profit and loss account is as follows:-

	<u>Sales</u>	<u>Costs</u>	<u>Sundry Revenue</u>	<u>Profit or Loss Before Subsidy</u>	<u>Subsidy</u>	<u>Profit or Loss After Subsidy</u>
1941	\$ 2.7206	\$ 2.7968	\$.0495	\$ -.0267	\$	\$ -.0267
1942	3.1126	3.1625	.0498	-.0001		-.0001
1943	3.2461	3.2287	.0389	.0563		.0563
1944	3.5093	4.0108	.0413	-.4602	.4348	-.0254

MINING COSTS

	<u>Labor Material & Power</u>	<u>General Charges</u>	<u>Royalties</u>	<u>Depn. & Depletion</u>	<u>Total Mining</u>	<u>Overhead</u>	<u>Total Cost</u>
1941	\$ 2.1168	\$.2836	\$.2716	\$.0036	\$ 2.6756	\$.1212	\$ 2.7968
1942	2.5244	.2996	.2510	.0051	3.0801	.0824	3.1625
1943	2.5042	.3610	.2373	.0297	3.1322	.0965	3.2287
1944	3.0831	.4791	.1122	.2010	3.8754	.1354	4.0108

PRODUCTION and PER MAN-DAY OUTPUT

	<u>Production Tonnage</u>	<u>Per Man-Day Output</u>
1941	87,364	3.32
1942	100,753	2.98
1943	136,560	3.13
1944	<u>99,053</u>	2.95
	<u>423,730</u>	

MR. MORRISON presents

Exhibit 306 - Corporate History and Summary of
Operating Experience, Midland
Coal Mining Company Limited,
Drumheller, Alberta
(supported by Financial State-
ment Exhibit FF)

Midland Coal Mining Company Limited

In reveiwing the history of this Company, the follow-
ing statements are extracted from the auditor's reports to the
shareholders:

Report on accounts for the year ended 31st May, 1940:

"Coal Mining Leases L.S.D. 3-4-5 of Section 17-19-20

W 4th stand in the name of S. L. McMullen, no assignment having
been made to your Company, although your Company pays the
lease rentals."

Report on accounts for the year ended 31st March, 1932:

"Guarantee and Mortgage. By agreement dated 18th March,
1932 between G. N. Coyle and S. L. McMullen, it was provided
that S. L. McMullen purchase the shares of the Midland Coal
Mining Company Limited held by G. N. and R. E. Coyle, for the
sum of \$300,000.00, payable \$50,000.00 in cash, and the
balance of \$250,000.00 in instalments of \$50,000.00 each,
together with interest at 5% on each instalment on the 1st of
January in the years 1933, 1934, 1935, 1936 and 1937. By the
said agreement S. L. McMullen agreed to obtain the guarantee
of your Company for payment of the said notes and security
from the Company payable to the order of Coyle.

By the said agreement G. N. Coyle assigned to S. L.
McMullen the claims of himself and R. E. Coyle against the
Company

The claims of G. N. and R. E. Coyle have been trans-
ferred on the books of your Company to S. L. McMullen.

At a meeting of the shareholders held 19th March, 1932,
it was unanimously resolved "that the Company do guarantee
payment of the notes - - - - - and that the Company give

the following security as collateral to the said guarantee:

Firstly: a first land mortgage on all land of the Company,

Secondly: a chattel mortgage on all equipment and personal property of the Company,

Thirdly: an assignment of the leases held by the Company " "

Report on accounts for the year ended 31st March, 1933:

After reciting the agreement as shown in the 1932 report:

"Mr. S. L. McMullen has paid on account of the foregoing liability the sum of \$52,000.00, being payment and interest due January 4th, 1933."

"By resolution dated 28th November, 1932, the directors of your Company agreed to purchase from S. L. McMullen, President and Managing Director of your Company, 500 shares (\$100.00 par value) of the Capital Stock of Midland Manufacturing Company Limited, a company to be formed for the purpose, inter alia, of manufacturing fire lighters. The registration of this Company has not yet been completed, but the entries for the transaction have been included on the attached statement, the purchase price being included under the caption of investments and the same duly credited to Mr. McMullen's account."

Report on accounts for the year ended 31st March, 1934:

After reciting the agreement as shown in the 1932 report:

"Mr. S. L. McMullen has paid on account of the foregoing liability, and \$10,000.00 on account of the amount due 4th January, 1934."

"Investments Reserve: An amount of \$57,499.00 has been transferred from Surplus Account as a Reserve against Investments held."

The above provision includes \$50,000.00 for the investment made in the Midland Manufacturing Company Limited.

Report on accounts for the year ended 31st March, 1935:

After reciting the agreement as shown in the 1932 report:

"On the 18th day of October, 1934, an Order Nisi was entered against your Company by the Honorable Chief Justice W. C. Simmons in which it was ordered that Coyle Investments Limited do have judgment against your Company for the sum of \$212,480.40 together with interest at 5% from 1st July, 1934, and further that such amount be paid on your future production at the rate of 35 cents per ton on lump and stove coal and 15 cents per ton on slack."

"Between such date and the 31st March, 1935, your Company has paid the Coyle Investments Limited the sum of \$37,397.94, this, with payment made on 9th April, 1935 of \$1,000.00, representing an overpayment of the terms of the order of \$10,135.22. All such payments made to the Coyle Investments Limited have been charged to Mr. S. L. McMullen on the books of your Company."

"At meetings of your Directors and Shareholders held on 27th November, 1934, it was duly resolved to purchase from S. L. McMullen Coal Mine Lease No. 5143 for the sum of \$135,400.00 payable in instalments, balance bearing interest at 5%. Your Company still owes Mr. McMullen \$69,147.32 under such agreement, no part of which is past due."

Report on accounts for the year ended 31st March, 1936:
After reciting 1932 agreement:

"Between 1st April, 1935, and 31st March, 1936, your Company has paid the Coyle Investments Limited the sum of \$40,578.08 representing an overpayment of the terms of the order of \$5,855.94. All such payments made to the Coyle Investments Limited have been charged to Mr. S. L. McMullen on the books of your Company."

Reporting on the accounts for the year ended 31st March, 1939:

"By resolution dated the 30th November, 1938, the Directors of your Company implemented a verbal understanding with S. L. McMullen, your President, to enter into an agreement

whereby they had undertaken to pay Mr. McMullen the sum of \$100,000.00, without interest, for right to use the trade mark presently in use by your Company."

The 1932 agreement is reported on in each year up to and including 31st March, 1941. The contingent liability in respect of the notes payable to Coyle is not mentioned on the financial statements of the Company after the fiscal period ended 31st March, 1941.

Report on accounts for the year ended 31st March, 1942:

"During the year your Company purchased from Mrs. S. L. McMullen 272 Units of the British Gold Mining Syndicate for \$40,800.00."

The Balance Sheet as at 31st March, 1942, shows an amount due to Mrs. McMullen of \$2,881.82, and no liability to Mr. McMullen.

Summarizing the foregoing transactions:-

Mr. McMullen received:

(a) For shares in the Midland Manufacturing Co., subsequently fully reserved by a charge to Surplus	\$ 50,000.00
(b) For Leases	135,400.00
(c) For trade mark	100,000.00
	<u>\$ 285,400.00</u>

Mrs. McMullen received:

(a) For Units in Gold Mining Syndicate	<u>\$ 40,800.00</u>
--	---------------------

FINANCIAL POSITION - 1944

<u>Assets</u>	
Net Property Values	\$ 305,772.37
Deferred and Refundable taxes	17,581.36
Investments less written off (Market value unknown)	40,801.00
Current Assets	\$ 103,156.43
Less Current Liabilities	<u>40,180.42</u>
	<u>\$ 427,130.74</u>

FINANCIAL POSITION (Continued)

<u>Liabilities</u>	
Share Capital	\$ 50,000.00
Surplus - Earned	322,121.87
- Capital	22,682.64
Deferred - Reserve for Holiday Pay	9,081.75
Emergency Coal Production Board, re Purchase of Plant and Equipment	23,244.48
	<u>\$ 427,130.74</u>

This Company has not received any production subsidies, but it will be observed from the immediately foregoing statement that the Emergency Fuel Board has loaned to it, for capital purposes, moneys which as at 31st March, 1944, stood at \$23,244.48.

Midland paid one dividend at 40%, amounting to \$20,000.00 in 1943.

OPERATING RESULTS

	<u>Profit or Loss</u>	
	<u>Before Income Tax</u>	<u>After Income Tax</u>
1930	\$ 94,090.10	\$ 90,600.51
1931	25,260.60	23,730.70
1932	42,017.60	38,338.90
1933	-5,417.05	-5,417.05
1934	-100.66	-100.66
1935	-7,680.42	-7,680.42
1936	8,997.27	7,357.87
1937	-2,233.24	-2,233.24
1938	-2,253.66	-2,253.66
1939	-9,546.44	-9,546.44
1940	-12,642.04	-12,642.04
1941	6,766.03	6,766.03
1942	88,780.60	28,780.60
1943	99,682.74	52,874.32
1944	62,211.00	44,388.20
	<u>\$387,932.43</u>	<u>\$252,963.62</u>

In the year 1944 there was received the sum of \$7,396.93 in respect of the year 1943 for cost of living bonus which was credited direct to the reserve for income taxes. The cost figures submitted have not been adjusted by this amount.

A summarized per ton analysis of the operating results is tabulated below:

	<u>Sales</u>	<u>Mining Costs</u>	<u>Adm. Expense</u>	<u>Sundry Revenue</u>	<u>Profit or Loss Before Taxes</u>
1930	\$ 3.206	2.348	.405	.053	.506
1931	3.097	2.339	.599	.029	.188
1932	2.736	2.164	.348	.037	.261
1933	2.607	2.303	.384	.039	-.041
1934	2.340	2.042	.332	.034	-
1935	2.412	2.113	.380	.028	-.053
1936	2.522	2.167	.329	.026	.052
1937	2.440	2.142	.337	.024	-.015
1938	2.482	2.154	.373	.027	-.018
1939	2.660	2.305	.492	.035	-.102
1940	2.666	2.358	.469	.037	-.124
1941	2.654	2.169	.465	.035	.055
1942	2.878	2.175	.251	.032	.484
1943	2.963	2.336	.235	.028	.420
1944	3.411	2.829	.309	.029	.302

Depletion was set up on the basis of 10¢ per gross ton produced for the years 1935 to 1942, and are included in the mining costs. During the latter year the total depletion of \$104,533.26 provided over those years was reversed with a consequent credit to the Surplus Account. In the years 1943 and 1944, no depletion was charged in mining costs.

An analysis of the above mining costs per ton based on the tonnage sold is shown hereunder:

	Labor Material & Power	General Charges	Depn.	Depletion	Total
1930	\$ 1.870	.212	.221	.045	2.348
1931	1.827	.221	.291		2.339
1932	1.653	.202	.309		2.164
1933	1.734	.223	.346		2.303
1934	1.495	.214	.333		2.042
1935	1.538	.213	.313	.049	2.113
1936	1.665	.215	.184	.103	2.167
1937	1.696	.201	.140	.105	2.142
1938	1.637	.220	.193	.104	2.154
1939	1.787	.261	.150	.107	2.305
1940	1.896	.224	.134	.104	2.358
1941	1.743	.191	.124	.111	2.169
1942	1.815	.197	.057	.106	2.175
1943	2.085	.220	.031		2.336
1944	2.482	.310	.037		2.829

PRODUCTION OF SALEABLE COAL, Shifts worked and Tons per Man-

Day based on tonnage sold is as follows:

	Production of Saleable Coal	Production	Shifts	Tons per Man-Day basis Tons Sold	Tons per Man- Day basis Clean Coal Raised
1930	178,973	178,973	44,968	3.98	3.98
1931	125,716	129,226	28,834	4.36	4.49
1932	147,580	150,478	34,083	4.33	4.41
1933	132,203	136,653	31,703	4.17	4.31
1934	137,554	142,054	32,365	4.25	4.40
1935	145,371	149,871	35,113	4.14	4.28
1936	144,689	149,319	37,190	3.89	4.01
1937	150,925	155,524	34,855	4.33	4.46
1938	122,101	127,500	28,865	4.23	4.41
1939	93,933	98,432	23,662	3.97	4.16
1940	101,972	106,376	23,881	4.27	4.45
1941	124,629	127,244	26,573	4.69	2.79
1942	183,415	186,729	41,217	4.45	4.53
1943	237,202	239,257	60,203	3.94	3.97
1944	205,776	206,801	51,315	4.01	4.03
	<u>2,232,039</u>	<u>2,284,437</u>	<u>534,827</u>	<u>4.18</u>	<u>4.27</u>

RECAPITULATION

Using representative years 1930, 1935, 1939 and 1944, comparative figures for certain features of the Company's operations are set out below:

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Valuation of Properties (Net)	\$ 271,052.02	246,766.99	250,185.67	305,772.37
Net Current position	-35,303.43	-88,500.68	-83,405.33	30,649.78
Surplus	183,947.71	107,705.51	114,212.19	322,121.87
-Depletion Adjustment		<u>7,002.58</u>	<u>60,599.43</u>	
Surplus on Comparable basis	<u>\$ 183,947.71</u>	<u>114,708.09</u>	<u>174,811.62</u>	<u>322,121.87</u>
Profit before income tax				
- without depletion	\$ 98,568.43	-677.84	499.54	62,211.00
- including depletion	80,671.13	-15,664.94	-9,343.66	41,530.90
Production	178,973	149,871	98,432	206,801
Production in tons per man-day	3.98	4.28	4.16	4.03
Labor cost per Ton (production basis)	\$ 1.594	1.283	1.477	2.090
Total mining & Operating costs including depreciation and depletion of 10¢ per ton on clean coal produced -				
Per ton	\$ 2.809	2.472	2.668	3.223
Average selling price per ton	\$ 3.206	2.412	2.660	3.411

MR. MORRISON presents

Exhibit 307 - Corporate History and Summary of
Operating Experience of The
Monarch Coal Mining Company Ltd.
(supported by Financial Statements
Exhibit "GG" for Identification)

Monarch Coal Mining Company Limited - Drumheller, Alberta

Monarch Coal Company commenced operations in April, 1936, and operates the Western Monarch & Western Crown leases near Drumheller, Alberta.

On the Western Monarch lease royalty is paid at the rate of 10¢ per ton, and 25¢ per ton on the Western Crown lease.

In reporting on the affairs of the Company as at 31st March, 1944, the President states:

"During the year under review, good progress has been made at your Western Crown mine, and it would appear that this mine will be ready to produce 400 tons per day within six months from the time when your Western Monarch areas are completely worked out."

Monarch are also interested in a retail yard at Vancouver which is operated by the City Coal Company Limited, a wholly owned subsidiary of the Monarch Company.

Up to 1943, the Company also owned the mineral and oil rights on certain acreage in Alberta. These were cancelled during that period due to Province of Alberta requirements in connection with drilling.

FINANCIAL POSITION - 1944

	<u>Assets</u>
Net Property Values	\$168,443.62
Subsidiary company balances	13,826.05
Net current position, including investments	<u>38,512.58</u>
	<u>\$220,782.25</u>

FINANCIAL POSITION (Continued)

<u>Liabilities</u>			
Share Capital - Common	45,000.00		
- Preferred	<u>17,325.00</u>	62,325.00	
Surplus - Earned		64,569.31	
- Capital		<u>93,887.94</u>	
		<u>\$ 220,782.25</u>	

Monarch has paid dividends at the rate of 4% on its preferred stock for the years 1939 to 1943 inclusive, which totals to the amount of \$3,397.00.

OPERATING RESULTS

	<u>Profit or Loss Before Taxes</u>	<u>Profit or Loss to include Depletion</u>	<u>Profit or Loss After Taxes</u>	<u>Taxable Income</u>
1937	\$ -4,757.43	\$ -7,684.48	\$ -4,757.43	-7,684.48
1938	6,483.14	306.33	6,483.14	-193.67
1939	2,909.34	-3,904.13	2,909.34	-2,177.22
1940	13,805.98	5,040.88	12,248.64	8,963.23
1941	11,868.05	2,086.25	9,340.24	6,724.54
1942	17,156.91	5,955.71	15,522.39	5,957.02
1943	25,329.03	13,395.23	22,401.09	7,319.85
1944	<u>11,263.76</u>	<u>-1,104.64</u>	<u>11,263.76</u>	<u>272.68</u>
	<u>\$ 84,058.78</u>	<u>14,091.15</u>	<u>75,411.17</u>	<u>19,181.95</u>

Factors accounting for the difference between profit or loss as shown by the books of the Company and the taxable income are depreciation adjustments, depletion and investment dividends received.

The results for 1944 include a production subsidy of \$25,812.37 and capital advances have been made to Monarch which at the end of the Company's fiscal year in 1944 stood at \$13,831.22.

A summary of the operating results per ton is as follows:-

	<u>Sales</u>	<u>Mining Cost</u>	<u>Adm. & Selling Expense</u>	<u>Sundry Revenue</u>	<u>Profit or Loss Before Taxes</u>
1937	\$ 2.738	2.459	.587	.079	-.229
1938	2.778	2.308	.479	.010	.001
1939	2.969	2.526	.503	.002	-.058
1940	2.780	2.312	.408	.001	.061
1941	2.779	2.331	.428	.002	.022
1942	3.025	2.529	.445	.001	.052
1943	2.788	2.219	.480	.007	.096
1944	3.415	3.157	.488	.013 } Subsidy .208 }	-.009

The above mining costs include depletion of 10¢ per ton, and the 1944 result incorporates a production subsidy at the rate of \$.208 per ton.

Sales are made by Monarch both through the medium of a selling agency and its subsidiary in Vancouver.

MINING COSTS (INCLUDING DEPLETION)

	<u>Labor, Material & Power</u>	<u>General Charges</u>	<u>Depn.</u>	<u>Depletion</u>	<u>Total</u>
1937	\$ 1.899	.319	.141	.100	2.459
1938	1.786	.257	.165	.100	2.308
1939	1.913	.308	.205	.100	2.526
1940	1.753	.239	.220	.100	2.312
1941	1.759	.255	.217	.100	2.331
1942	1.965	.295	.169	.100	2.529
1943	1.644	.262	.212	.100	2.219
1944	2,372	.436	.249	.100	3.157

PRODUCTION, SHIFTS & TONS PER MAN-DAY

	<u>Production</u>	<u>Shifts</u>	<u>Tons Per Man-Day</u>
1937	36,812	11,388	3.232
1938	61,768	13,264	4.656
1939	68,135	15,371	4.432
1940	85,706	16,890	5.074
1941	97,818	19,997	4.891
1942	112,074	24,271	4.617
1943	129,258	27,519	4.697
1944	<u>123,684</u>	<u>31,522</u>	<u>3.923</u>
	<u>715,255</u>	<u>160,222</u>	<u>4.470</u>

RECAPITULATION

Using the years 1939 and 1944 as representative,
certain features of the Company's operations are shown below:

	<u>1939</u>	<u>1944</u>
Net Property Value	\$ 165,481.79	\$ 168,443.62
Net current position	26,849.37	38,512.58
Surplus - Earned	4,239.86	64,569.31
Profit - Before Income Tax	2,909.34	11,263.76
- After Income Tax	2,909.34	11,263.76
- To include depletion	-3,904.13	-1,104.64
- Taxable	-2,177.22	272.68
Production	68,135	123,684
" in tons per man-day	4.432	3.923
Labor costs - per ton	1.607	1.929
Mining Costs, Administra- tion & selling, including depreciation & depletion, per ton	3.029	3.645
Average selling price - per ton	2.969	3.415

MR. MORRISON presents

Exhibit 308 - Corporate History and Summary of Operating Experience, Murray Collieries Limited, East Coulee, Alberta (Supported by Financial Statements Exhibit "HH" for Identification)

Murray Collieries Limited - East Coulee, Alberta

Murray Collieries is a family corporation with an issued share capital of \$100,000.00 for a cash consideration.

A six-year sinking fund mortgage was obtained in 1934 and retired in 1944, in the amount of \$64,540.00.

FINANCIAL POSITION - 1944

Assets

Net Property Value	\$116,131.16
Net Current Position	<u>97,802.92</u>
	<u>\$213,934.08</u>

Liabilities

Share Capital	\$100,000.00
Funded Debt (Mortgage)	5,930.98
Reserves	15,160.00
Surplus	<u>92,843.10</u>
	<u>\$213,934.08</u>

In the year 1937 a valuation was placed on and set up in the books of account, new coal leases acquired in the sum of \$1,555,200.00 with a like amount credited to reserve. At the same time \$122,905.13 was written off old leases abandoned, the charge being made to the reserve, leaving the reserve against leases at the figure of \$1,432,294.87.

At the end of the 1944 fiscal year, coal leases, other than those mentioned previously, plant equipment, etc., had a gross value of \$262,795.69 with a reserve for depreciation of \$247,316.93, or a net of \$15,478.76. At the same date, development stood at \$100,161.31 with \$87,810.65 reserved for, or a net of \$12,350.66. Depletion has only been set up in the years 1943 and 1944 at the rate of 10¢ per ton.

No dividends have been paid by this Company during the period under review.

OPERATING RESULTS

	<u>Profit Before Taxes</u>	<u>Profit After Taxes</u>	<u>Taxable Income</u>
1930	\$ 23,890.53	\$ 23,890.53	\$ 3,599.53
1931	68,299.84	64,778.24	37,047.25
1932	37,537.54	35,284.30	3,862.03
1933	17,620.68	17,620.68	-2,288.42
1934	5,518.95	5,518.95	-850.01
1935	1,026.55	1,026.55	-19,642.11
1936	5,039.83	5,039.83	-2,885.34
1937	3,278.87	3,278.87	-2,778.39
1938	3,270.83	3,270.83	-6,819.67
1939	380.91	380.91	-6,234.51
1940	-9,262.43	-9,262.43	-17,531.38
1941	3,536.13	3,536.13	6,107.85
1942	406.66	406.66	-12,354.32
1943	94,042.11	21,000.00	95,644.03
1944	<u>29,518.62</u>	<u>17,518.62</u>	<u>29,518.62</u>
	<u>\$ 284,105.62</u>	<u>\$193,288.67</u>	<u>\$ 92,179.46</u>

Prior to 1933 depreciation was not set up for all years in the books of account. Depreciation for 1931 was \$14,598.55, and for 1932 \$15,963.52 with 1930 being duly entered. The depreciation for 1935 is estimated at \$17,000.00.

Depletion has been entered in the books of account for the years 1943 and 1944 only.

Depletion and Depreciation charges are the main contributing factors accounting for the difference between the results as shown by the books of the Company and taxable income.

An analysis of the profit and loss account per ton adjusted to include depreciation in 1932, 1933 and 1935, and to include depletion at 10¢ per ton for all years is as follows:

	<u>Sales</u>	<u>Sundry Revenue</u>	<u>Mining Cost</u>	<u>Admn. & Selling Exp.</u>	<u>Profit or Loss Before Taxes</u>
1930 \$	2.672	.024	2.049	.378	.269
1931	2.815	.017	1.763	.424	.645
1932	2.645	.019	1.899	.498	.267
1933	2.405	.019	1.839	.442	.143
1934	2.237	.019	1.839	.449	-.032
1935	2.239	.032	2.183	.488	-.400
1936	2.211	.023	1.985	.292	-.043
1937	2.176	.060	2.036	.252	-.052
1938	2.321	.051	2.224	.210	-.062
1939	2.482	.043	2.349	.271	-.095
1940	2.627	.057	2.622	.280	-.218
1941	2.538	.036	2.397	.247	-.070
1942	2.806	.038	2.676	.266	-.098
1943	3.085	.030	2.372	.260	.483
1944	3.352	.023	2.941	.237	.197

This Company lost its entire plant and equipment by fire in July, 1939, the beginning of the 1940 fiscal year. This reduced the coal production and increased the costs on a per ton basis for that year. The plant was rebuilt by November of 1939.

All sales are made through the medium of an outside sales agency on a commission basis.

A further breakdown of the mining costs is tabulated on the following page, adjusted to include depreciation for the years 1931 and 1932 and to include depletion at 10¢ per ton for all years.

	<u>Labor Material & Power</u>	<u>General Charges</u>	<u>Depn.</u>	<u>Depletion</u>	<u>Total</u>
1930	\$ 1.317	.194	.438	.100	2.049
1931	1.245	.216	.202	.100	1.763
1932	1.328	.199	.272	.100	1.899
1933	1.323	.196	.220	.100	1.839
1934	1.267	.254	.218	.100	1.839
1935	1.420	.344	.319	.100	2.183
1936	1.416	.264	.205	.100	1.985
1937	1.215	.458	.263	.100	2.036
1938	1.387	.453	.284	.100	2.224
1939	1.515	.432	.302	.100	2.349
1940	1.684	.523	.315	.100	2.622
1941	1.652	.442	.203	.100	2.397
1942	1.958	.450	.168	.100	2.676
1943	1.806	.359	.107	.100	2.372
1944	2.269	.436	.136	.100	2.941

A summary of the production, shifts and tons produced is as follows:-

	<u>Production</u>	<u>Shifts</u>	<u>Tons Per Man-Day</u>
1930	64,793		
1931	72,120		
1932	58,698		
1933	72,686	12,957	5.6
1934	80,455	15,007	5.36
1935	53,452	11,017	4.85
1936	87,344	16,644	5.24
1937	68,488	19,254	3.55
1938	85,785	16,706	5.13
1939	83,842	17,019	4.94
1940	77,540	19,172	4.04
1941	119,260	24,950	4.78
1942	145,416	33,028	4.40
1943	195,536	40,881	4.78
1944	<u>150,508</u>	35,455	4.25
	<u>1,415,923</u>		

RECAPITULATION

Using representative years 1930, 1935, 1939 and 1944, comparative figures for certain features of the Company's operations are set out below:-

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Valuation of Properties (Net)	\$243,662.73	167,203.51	201,503.40	116,131.16
Net current position	-74,680.50	44,911.85	29,148.82	97,802.92
Surplus and Reserves	68,982.23	50,741.54	66,112.22	108,003.10
Profit - Before income tax	17,411.23	-21,318.65	-8,003.29	29,518.62
After income tax	17,411.23	-21,318.65	-8,003.29	17,518.62
Taxable Income	3,599.53	-19,642.11	-6,234.51	29,518.62

Note: The above profit figures include depreciation and depletion for all years.

Production	64,793	53,452	83,842	150,508
" in tons per man-day	-	4.85	4.94	4.25
Labor Cost	\$ 1.007	1.187	1.352	1.852
Mining Cost, Administration & Selling Expense, Depreciation and Depletion - per ton	2.427	2.671	2.620	3.178
Average Selling Price - per ton	2.672	2.239	2.482	3.352

MR. MORRISON submits

Exhibit 309 - Corporate History and Summary of
Operating Experience, Newcastle
Collieries, Drumheller, Alta.
(supported by Financial Statements
Exhibit "II" for identification)

Newcastle Collieries - Drumheller, Alberta

FINANCIAL POSITION - 1944

Assets

Net Property Values	\$ 122,485.74
Deferred and Refundable Taxes	15,159.12
Investments	48,481.00
Net Current Position	<u>93,180.48</u>
	<u>\$ 279,306.34</u>

Liabilities

Share Capital	\$ 298,437.00
Reserves	5,000.00
Deficit	<u>-24,130.66</u>
	<u>\$ 279,306.34</u>

During the 15 year period under review Newcastle has paid dividends in the years 1936 and 1937, 1940 and 1944 totalling \$40,289.00.

In 1935 an investment in oil properties amounting to \$157,885.57 was written off to surplus and as at the same date coal lands were re-valued with a resultant increase of \$150,000.00, which was credited to surplus.

OPERATING RESULTS

The Company shows the following results with depletion at 10¢ per ton recorded in all years except 1940.

	<u>Profit or Loss</u>	
	<u>Before Taxes</u>	<u>After Taxes</u>
1930	\$ -15,091.01	\$ -15,091.01
1931	-18,292.74	-18,292.74
1932	-15,283.60	-15,283.60
1933	-11,166.01	-11,166.01
1934	-154.00	-154.00
1935	1,440.22	1,403.25
1936	-7,350.11	-7,350.11
1937	-16,646.17	-16,646.17
1938	-8,668.01	-8,668.01
1939	11,842.79	8,976.48
1940	-11,986.43	-11,986.43
1941	-1,373.18	-1,373.18
1942	35,429.39	24,586.39
1943	71,100.34	24,211.64
1944	<u>14,738.25</u>	<u>8,842.95</u>
	<u>\$ 28,539.73</u>	<u>\$-37,990.55</u>

Newcastle has not received any production subsidies in the years shown above.

A summarized profit and loss account per ton is tabulated below:

	<u>Sales</u>	<u>Mining Cost</u>	<u>Adm. Expense</u>	<u>Sundry Revenue</u>	<u>Profit or Loss Before Taxes</u>	<u>Income Tax</u>
1930	\$ 2.927	3.213	.222	.203	-.305	
1931	2.948	3.987	.327	.484	-.882	
1932	2.696	4.037	.318	.235	-1.424	
1933	2.469	3.345	.203	.182	-.897	
1934	2.474	2.406	.117	.045	-.004	
1935	2.688	2.595	.119	.057	.031	.001
1936	2.548	2.560	.131	.027	-.116	
1937	2.450	2.735	.094	.056	-.323	
1938	2.654	2.729	.107	.034	-.148	
1939	2.780	2.572	.077	.048	.179	.043
1940	2.732	2.891	.103	.046	-.216	
1941	2.955	2.956	.046	.029	-.018	
1942	3.191	2.863	.042	.039	.325	.100
1943	3.390	2.854	.077	.020	.479	.289
1944	3.731	3.522	.115	.040	.134	.054

A further analysis of the Mining Cost shown above follows:

	<u>Labor</u>	<u>Material</u>	<u>Other Charges</u>	<u>Depn. & Development</u>	<u>Depletion</u>	<u>Total</u>
1930	\$ 2.559	.179	.206	.169	.100	3.213
1931	3.091	.220	.219	.357	.100	3.987
1932	2.622	.355	.330	.630	.100	4.037
1933	2.153	.260	.289	.543	.100	3.345
1934	1.701	.228	.051	.326	.100	2.406
1935	1.862	.248	.198	.187	.100	2.595
1936	1.967	.186	.201	.106	.100	2.560
1937	2.018	.248	.369	-	.100	2.735
1938	2.062	.178	.389	-	.100	2.729
1939	1.804	.161	.473	.034	.100	2.572
1940	2.032	.170	.440	.249	-	2.891
1941	2.092	.134	.521	.109	.100	2.956
1942	2.037	.161	.520	.045	.100	2.863
1943	1.983	.137	.619	.015	.100	2.854
1944	2.489	.171	.741	.021	.100	3.522

A summary of the production, shifts, and tons produced per man-day is as follows:-

	<u>Production</u>	<u>Shifts Worked</u>	<u>Tons per Man-Day</u>
1930	49,341	-	-
1931	20,759	6,993	2.969
1932	10,736	3,838	2.797
1933	12,446	4,331	2.874
1934	38,286	11,856	3.229
1935	45,592	12,717	3.585
1936	62,937	17,809	3.534
1937	51,527	15,572	3.309
1938	58,539	17,791	3.290
1939	65,930	17,680	3.729
1940	55,406	17,856	3.103
1941	74,069	22,359	3.313
1942	108,964	33,906	3.214
1943	148,455	39,931	3.718
1944	110,135	31,292	3.520
	<u>913,122</u>		

RECAPITULATION

Using the representative years of 1930, 1935, 1939 and 1944, certain features of the Company's operations are set out hereunder:

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Net Property Value	\$114,448.96	216,237.11	176,517.65	122,485.74
Net Current Position	26,356.86	45,970.33	52,814.03	93,180.48
Surplus or Deficit	29,915.19	-19,168.76	-58,319.52	-24,130.66
Profit or Loss	-15,091.01	1,440.22	11,842.79	14,738.25
Production - Tonnage	49,341	45,592	65,930	110,135
In tons per man	-	3.585	3.729	3.520
Labor - Cost per ton \$	2.559	1.862	1.804	2.489
Total Mining & Operating cost including depreciation and depletion - per ton	3.435	2.714	2.649	3.637
Average Selling Price per ton	2.927	2.688	2.780	3.731

MR. MORRISON submits

Exhibit 310 - Corporate History and Summary of Operating Experience, Red Deer Valley Coal Company Limited, Drumheller, Alberta (supported by Financial Statements Exhibit "JJ" for Identification)

Red Deer Valley Coal Co. Ltd. - Drumheller, Alta.

Red Deer Valley Coal Company Limited commenced operations in August, 1934. Prior to that time its properties were leased to other operators.

The share capital is \$346,170.00, of which \$287,970.00 was issued for leases and the balance of \$58,200.00 for cash.

FINANCIAL POSITION - 1944

Assets

Net Property Values	\$297,514.41
Deferred, Refundable Taxes, etc.	5,455.06
Net Current Position	<u>150,241.71</u>
	<u>\$453,211.18</u>

Liabilities

Share Capital	\$346,170.00
Reserves	29,004.00
Deficit	- 77,285.98
Bills Payable and Accrued Interest	<u>155,323.16</u>
	<u>\$453,211.18</u>

Bills payable and accrued interest represents principal and interest of loans made to the company by private individuals some years ago. At the end of 1935 these loans stood at \$108,621.14.

Subsequent to the close of the 1944 fiscal year the Emergency Fuel Production Board granted this Company a loan of \$13,968.00 to purchase equipment.

No assistance by way of production subsidies has been received during the period under review.

OPERATING RESULTS

	<u>Profit or Loss Before Taxes</u>	<u>Profit or Loss After Taxes</u>	<u>Taxable Income</u>
1935	\$ -4,450.99	-4,450.99	-4,450.99
1936	12,846.55	10,277.24	15,796.05
1937	-8,482.02	-8,482.02	-8,423.97
1938	-7,067.52	-7,067.52	-6,724.70
1939	4,356.87	3,481.87	4,411.87
1940	-15,365.57	-15,365.57	-14,074.26
1941	-333.72	-444.65	2,520.96
1942	-1,167.74	-1,906.43	1,406.79
1943	66,208.53	21,457.71	x 66,208.53
1944	<u>26,032.12</u>	<u>15,611.28</u>	x <u>26,032.12</u>
	\$ <u>72,576.51</u>	\$ <u>13,110.92</u>	\$ <u>82,702.40</u>

^x Not yet assessed by Income Tax department.

The difference between the amount of Profit before taxes and the taxable income is mainly accounted for by the disallowance, for taxation purposes, of depreciation and legal fees.

An analysis of the profit and loss account per ton is as follows:

	<u>Sales</u>	<u>Mining Cost</u>	<u>Adm. & Selling Expense</u>	<u>Sundry Revenue</u>	<u>Profit or Loss Before Taxes</u>
1935	\$ 2.923	2.716	.365	.063	-.095
1936	2.705	2.255	.323	.044	.171
1937	3.006	2.818	.399	.061	-.150
1938	3.198	3.053	.406	.125	-.136
1939	3.053	2.501	.564	.083	.071
1940	3.389	2.991	.710	.072	-.240
1941	2.852	2.468	.435	.049	-.002
1942	3.055	2.697	.413	.047	-.008
1943	3.161	2.658	.286	.070	.287
1944	3.514	3.291	.268	.171	.126

A further analysis of the foregoing mining cost is shown hereunder:-

	<u>Labor</u>	<u>Other Mining Costs</u>	<u>Depn.</u>	<u>Depletion</u>	<u>Total</u>
1935	\$ 1.875	.741	-	.100	2.716
1936	1.704	.425	.026	.100	2.255
1937	2.160	.480	.078	.100	2.818
1938	2.313	.581	.059	.100	3.053
1939	1.890	.448	.063	.100	2.501
1940	2.250	.594	.047	.100	2.991
1941	1.792	.469	.107	.100	2.468
1942	1.956	.544	.097	.100	2.697
1943	1.848	.611	.099	.100	2.658
1944	2.256	.792	.143	.100	3.291

The above labor costs are gross amounts, the cost-of-living bonus assistance being credited to sundry revenue.

A summary of the production, shifts and production in tons per man-day is as follows:-

	<u>Production</u>	<u>Shifts</u>	<u>Tons Per Man-Day</u>
1935	47,002	16,512	2.85
1936	75,097	21,387	3.5
1937	56,355	19,539	2.9
1938	51,849	18,760	3.28
1939	61,645	16,834	3.8
1940	64,061	22,971	3.31
1941	113,448	32,224	3.52
1942	145,166	40,442	3.6
1943	229,882	57,178	4.02
1944	<u>206,250</u>	<u>58,911</u>	<u>3.50</u>
	<u>1,050,755</u>	<u>304,758</u>	<u>3.44</u>

RECAPITULATION

Using the years 1935, 1939 and 1944 as representative, certain features of the Company's operations are set out below:

	1935	1939	944
Net Property Valuation	\$368,473.62	333,223.21	297,514.41
Net Current Position	32,997.98	77,866.59	150,241.71
Bills Payable	108,621.14	120,214.10	155,323.16
Deficit	-81,872.54	-83,664.22	-77,285.98
Reserves	29,004.00	29,004.00	29,004.00
Profit - Before Income Tax	-4,450.99	4,356.87	26,032.12
- After Income Tax	-4,450.99	3,481.87	15,611.28
Taxable Income	-4,450.99	4,411.87	26,032.12
Production	47,002	61,645	206,250
" in tons per man-day	2.85	3.80	3.50
Labor Cost	\$ 1.875	1.890	2.256
Mining Cost, Adminis- tration and Selling Cost, Depreciation and Depletion	\$ 3.081	3.065	x 3.559
Average Selling Price - Per Ton	\$ 2.923	3.053	3.514

^x Credit for Cost of Living Bonus received - included in sundry revenue.

MR. MORRISON submits

Exhibit 311 - Corporate History and Summary of
Operating Experience, Rosedale
Collieries Limited, Rosedale, Alta.
(supported by Financial Statements
Exhibit "KK" for Identification)

Rosedale Collieries Limited - Rosedale, Alberta

Rosedale Collieries Limited commenced operations in 1933, and issued its capital stock of \$600,000.00 and 6% debentures of \$175,000.00 in accordance with an agreement between Rosedale Collieries Limited, Rosedale Coal Company Limited, and the Great West Coal Company of Winnipeg. The amount of fixed assets turned over by the Rosedale Coal Company dated back to 1915, which, together with subsequent additions made by the Rosedale Coal and Clay Products Limited, were entered at the book value less sustained depreciation.

This Company has operated the Star and Rosedale Mines from the commencement of its operations and the Paragon Mine for the years 1938 and 1939.

FINANCIAL POSITION - 1944

Assets

Net Property Value	\$ 615,477.25
Deferred, etc.	65,979.04
Net Current Position including accrued bond interest	<u>49,144.36</u>
	<u>\$ 730,600.65</u>

Liabilities

Share Capital	\$ 600,000.00
Funded Debt - Debentures 6%	175,000.00
Reserves	344.14
Deficit	<u>-44,743.49</u>
	<u>\$ 730,600.65</u>

Comparison of the Property Account as at the end of the fiscal years 1933 and 1944 shows an increase of \$66,467.33, and also that depreciation and depletion has been provided in the amount of \$194,135.69.

OPERATING RESULTS

After providing interest at 6% on the outstanding bond issue of \$175,000.00, amounting to \$10,500.00 annually from 1st June, 1935, the company has shown losses in all years. Depreciation and depletion has been charged in the years shown in summary of profit and loss per ton.

Total losses for years 1934 to 1939	\$ 1,432.08
Loss for 1940	7,004.28
Loss for 1941	10,245.09
Loss for 1942	6,977.57
Loss for 1943	10,875.08
Loss for 1944	<u>8,209.39</u>
Total Loss to 1944	<u>\$ 44,743.49</u>

Rosedale has not paid any income taxes on its operations to 1944.

An analysis per ton of the profit and loss account is as follows:

<u>Paragon Mine</u>			<u>Rosedale Mine</u>			<u>Star Mine</u>			
<u>Sales</u>	<u>Costs</u>	<u>Oper. Profit or Loss</u>	<u>Sales</u>	<u>Costs</u>	<u>Oper. Profit or Loss</u>	<u>Sales</u>	<u>Costs</u>	<u>Operating Profit or Loss</u>	
1934			2.556	2.489	.067	2.553	2.301	.252	
1935			2.483	2.281	.202	2.458	2.443	.015	
1936			2.605	2.498	.107	2.414	2.413	.001	
1937			2.498	2.552	-.054	2.467	2.163	.304	
1938	2.462	3.183	-.721	2.651	2.543	.108	2.600	2.191	.409
1939	2.374	3.918	-1.544	2.704	2.800	-.096	2.726	2.224	.502
1940			2.757	2.883	-.126	2.706	2.535	.171	
1941			2.788	2.804	-.016	2.691	2.651	.040	
1942			3.097	3.280	-.183	2.957	2.649	.308	
1943			3.131	3.596	-.465	3.107	2.591	.516	
1944			3.492	3.713	-.221	3.556	2.970	.586	

COMBINED OPERATIONS

	Combined Profit or Loss Operating	Depn.	Depletion	Head Office	Bond Int.	Sundry Revenue	Profit or Loss
1934 \$.161	.062	.100				-.001
1935	.129	.039	.100	.014		.022	-.002
1936	.065	-	-		.066		-.001
1937	.113	.050	-	.003	.062		-.002
1938	.203	.069	.080	.002	.066	.011	-.003
1939	.166	.071	.050	.004	.065	.023	-.001
1940	.015	-	-	.008	.070	.016	-.047
1941	.007	-	-	.013	.061	.008	-.059
1942	.026	-	-	.016	.059	.010	-.039
1943	.050	.130	.070	.004	.046	.152	-.048
1944	.267	.162	.100	.012	.047	.017	-.037

A further analysis of the costs by mines is tabulated below:-

Paragon Mine

	Labor	Materials	Power	Other Charges	Selling Adm. & General Expense	Sundry Revenue Cr.	Total
1938 \$	2.388	.186	.062	.449	.098		3.183
1939	2.967	.229	.093	.530	.099		3.918

Rosedale Mine

1934	1.673	.189	.133	.453	.119	.078	2.489
1935	1.643	.178	.118	.270	.130	.058	2.281
1936	1.842	.171	.127	.302	.115	.059	2.498
1937	1.858	.226	.124	.319	.122	.097	2.552
1938	1.844	.212	.109	.295	.157	.074	2.543
1939	2.022	.232	.133	.376	.143	.106	2.800
1940	2.160	.244	.144	.343	.096	.104	2.883
1941	2.068	.259	.113	.317	.094	.047	2.804
1942	2.364	.341	.179	.347	.123	.074	3.280
1943	2.574	.394	.180	.360	.133	.045	3.596
1944	2.592	.479	.255	.546	.227	.033	4.066

For the year 1944 subsidies claimed (by Rosedale Mine) of \$.353 per ton reduce the cost to \$3.713 per ton.

Star Mine

	Labor	Materials	Power	Other Charges	Selling Adm. & General Expense	Sundry Revenue Cr.	Total
1934	\$ 1.725	.147	.079	.239	.133	.022	2.301
1935	1.740	.229	.068	.291	.132	.017	2.443
1936	1.794	.187	.075	.276	.096	.015	2.413
1937	1.643	.122	.065	.271	.076	.014	2.163
1938	1.600	.164	.074	.261	.109	.017	2.191
1939	1.678	.167	.063	.248	.083	.015	2.224
1940	1.910	.219	.075	.269	.090	.028	2.535
1941	1.997	.186	.083	.333	.072	.020	2.651
1942	1.977	.182	.076	.325	.106	.017	2.649
1943	1.964	.198	.053	.313	.072	.009	2.591
1944	2.086	.309	.051	.468	.065	.009	2.970

PRODUCTION

<u>Rosedale Mine</u>				<u>Star Mine</u>		
Production	Shifts	Tons Per Man-Day		Production	Shifts	Tons Per Man-Day
1934	60,276			61,852	17,216	3.04
1935	88,038			56,696	18,045	2.97
1936	87,651	19,137	3.04	56,301	22,271	3.68
1937	91,561	27,822	3.32	79,267	18,387	3.76
1938	87,651	24,544	2.86	65,357	19,663	3.90
1939	70,978	26,940	2.88	83,712	24,302	3.40
1940	78,523	32,077	2.93	70,524	22,936	2.83
1941	103,697	40,840	2.70	69,240	21,420	3.49
1942	102,853	41,840	2.55	76,224	30,396	3.62
1943	107,091	42,062	2.27	118,653	39,777	3.34
1944	86,926	41,499	2.64	133,595	37,100	3.31
	<u>965,245</u>			<u>871,421</u>		

RECAPITULATION

Using the years 1935, 1939 and 1944 as representative, certain features of the Company's operations are set out below:

	<u>1935</u>	<u>1939</u>	<u>1944</u>
Net Property Valuation	\$705,605.82	677,459.24	615,477.25
Net Current Position	60,153.04	85,384.28	49,144.36
Deficit Account	-292.78	-1,432.08	-44,743.49
Annual Operating Loss	-198.99	-135.87	-8,209.39
Production (Rosedale)			
Tonnage	88,038	70,978	86,926
Tons per Man-Day	-	2.88	2.64
Production (Star)			
Tonnage	56,696	83,712	133,595
Tons per man-day	2.97	3.40	3.31
Labor Cost - Rosedale	\$ 1.643	2.022	2.592
- Star	\$ 1.740	1.678	2.086
Total Mining & Operating Costs			
- Rosedale	2.281	2.800	3.713
- Star	2.443	2.726	2.970
Average Selling Price per ton			
- Rosedale	2.483	2.704	3.492
- Star	2.458	2.726	3.556

MR. MORRISON submits

Exhibit 312 - Corporate History and Summary of
Operating Experience, Western Gem
and Jewel Collieries Limited,
Cambria, Alberta (supported by
Financial Statements Exhibit "LL"
for Identification)

Western Gem & Jewel Collieries Limited - Cambria, Alberta

The following information has been extracted from a
statement made by the Company in support of a claim for a
standard profit under the Excess Profits Tax Act 1940.

This Company was incorporated on 25th June, 1937, for
the purpose of acquiring the properties, leases and undertak-
ings of the Western Gem Coal Company Limited, Drumheller, Alta.,
and Jewel Collieries Limited, Wayne, Alta. (the latter includ-
ing its interest in the Cambrian Coal Company Limited, a
company developing a new property near Rosedale, Alberta.)

In consideration of the foregoing and payment of
\$50,000.00, \$25,000.00 by the Western Gem Coal Company Limited,
and \$25,000.00 by the Jewel Collieries Limited, this Company
allotted shares as follows:-

Western Gem Coal Company Ltd.,

75,000 Common Shares without nominal or par value

150,000 5% Non-cumulative Preferred Shares of \$2.00 each

Jewel Collieries Ltd.,

75,000 Common Shares without nominal or par value

150,000 5% Non-cumulative Preferred Shares of \$2.00 each.

On 3rd July, 1937, Hon. Mr. Justice Tweedie, of the
Supreme Court of Alberta, granted a declaratory order, under
Section 12 (9) of The Companies Act (Dominion) determining the
value of the property and moneys to be received pursuant to
the agreement of 2nd June, 1937, in payment for shares to be
allotted pursuant thereto as the cash equivalent of the value
of the shares so to be allotted.

In view of Mr. Justice Tweedie's order the valuation of
all Leases, Buildings, Plant, Equipment, etc., acquired was
determined to be the equivalent of the following:

300,000 Preferred Shares of \$2.00 each	\$600,000.00
150,000 Common Shares of no par value, issued for \$1.00 each	<u>150,000.00</u>
	<u>\$750,000.00</u>

Mr. C. G. Durham, Secretary and Manager of the Drumheller Coal Operators' Association, estimated the value of the Plant and Equipment at the Company's "Cambrian Mine" to be \$250,000.00 at 28th April, 1939. As all the plant and equipment of the Company had been concentrated in the operation of this mine, the valuation above was established on the books at March 31st, 1939, and the balance of capital values, \$497,425.82, was recorded as leases of coal rights. The difference between the total of these two figures (\$747,425.82) and the original \$750,000.00, namely, \$2,574.18, representing disposals of fixed assets less additions made to 31st March, 1939.

The figure of \$497,425.82 remained unchanged until the year ended 31st March, 1943, during which year a building and certain coal leases were sold resulting in a reduction of the Lease Account of \$34,749.50.

No breakdown of Buildings, Plant and Equipment has been made or is possible as the capital assets were acquired in "bulk". As the Company is operating a wasting asset, depreciation has been computed at 10% per annum on all Buildings, Plant and Equipment.

Operation of the Mines of the two aforementioned companies was assumed as from 1st April, 1937, as was also the further development and operation of the "Cambrian Mine".

Abandonment of the first two mentioned mines was necessary prior to the close of this Company's first financial year at 31st March, 1938, and since that time the Company's operations have been confined to the "Cambrian" Mine.

Satisfactory coal was at first obtained from this operation but subsequent development encountered poor coal with

necessarily heavy expenditure for removal of plate and rock and consequent unsatisfactory returns for the output.

FINANCIAL POSITION - 1944Assets

Net Property Values	\$ 544,241.22
Deferred, etc.	5,131.03
Net Current Position	<u>59,398.96</u>
	<u>\$ 608,771.21</u>

Liabilities

Share Capital	\$ 750,000.00
Reserves	8,079.44
Deficit	<u>-149,308.23</u>
	<u>\$608,771.21</u>

No dividends have been paid by this Company during the period under review.

OPERATING RESULTS

As the operations have resulted in losses for all years, no income taxes have been paid.

Depletion has been set up at 10¢ per ton for all years, and the results are as follows:

1939 - Loss	\$ 7,720.50
1940 - Loss	10,388.81
1941 - Loss	9,158.43
1942 - Loss	15,061.62
1943 - Loss	60,021.69
1944 - Loss	<u>8,965.58</u>
Total Loss	<u>\$111,316.63</u>

A summarized per ton analysis of the profit and loss account is as follows:

	<u>Sales</u>	<u>Mining Costs</u>	<u>Depn. & Depletion</u>	<u>Adm. & Selling Expense</u>	<u>Sundry Revenue</u>	<u>Loss</u>
1939	\$ 2.69	2.38	.23	.23	.07	-.08
1940	2.708	2.450	.240	.200	.068	-.114
1941	2.740	2.521	.224	.135	.054	-.086
1942	3.010	2.847	.227	.156	.070	-.150
1943	3.157	3.682	.309	.245	.050	-1.029
1944	3.365	3.865	.391	.268	.040	-1.119

A claim has been made to Emergency Fuel Control Board for subsidy at the rate of \$1.011 per ton for the year 1944, which amount would reduce the above loss to \$.108 per ton for that year.

A further analysis of the Mining Cost is shown hereunder:

	<u>Labor</u>	<u>Material</u>	<u>Other Charges</u>	<u>Total</u>
1939	\$ 1.70	.29	.39	2.38
1940	1.768	.337	.345	2.450
1941	1.763	.363	.395	2.521
1942	2.083	.405	.359	2.847
1943	2.542	.592	.548	3.682
1944	2.753	.547	.565	3.865

A summary of production, shifts worked and tons per man-day is as follows:

	<u>Production</u>	<u>Shifts</u>	<u>Tons per Man-Day</u>
1939	92,250	24,940	3.698
1940	91,230	28,838	3.163
1941	102,590	31,142	3.294
1942	100,648	34,246	2.938
1943	58,273	25,878	2.251
1944	<u>81,439</u>	31,929	2.55
	<u>526,430</u>		

Mr. Morrison submits -

EXHIBIT 313 - Financial Statements 1930 - 1944,
Alexo Coal Company Limited,
Alexo, Alberta - Corporate History
and Summary of Operating Experience.

(Supported by Exhibit "MM" for identification)

Alexo Coal Company Limited has an authorized share capital of \$200,000.00, of which is issued \$125,900.00.

\$22,200.00 in shares were given for the leases, the balance for cash.

Bonds were also issued in 1930 to a total of \$59,400.00 covering advances plus accrued interest made by shareholders.

FINANCIAL POSITION - 1944

Assets

Net Property Value	\$243,025.11
Net Current Position	<u>- 13,660.21</u>
	<u>\$229,364.90</u>

Liabilities

Share Capital	\$125,900.00
Funded debt with interest and deferred liabilities	93,605.67
Surplus	<u>9,859.23</u>
	<u>\$229,364.90</u>

During the period 1930 - 1944, \$80,001.65 has been the net additions to the properties.

Dividends of 3% were paid in the years 1930 and 1931.

OPERATING RESULTS

1930	\$ 2,675.21	1935	\$ -14,853.42	1940	\$ -10,382.35
1931	-14,827.72	1936	-12,006.51	1941	- 9,549.61
1932	-10,838.05	1937	-10,121.38	1942	- 6,080.52
1933	-12,897.42	1938	- 8,969.85	1943	3,648.75
1934	<u>-16,046.53</u>	1939	<u>- 9,941.09</u>	1944	<u>2,859.66</u>

T O T A L \$ -127,330.83

Depletion is included in the above results at 10¢ per ton.

A summary of the profit and loss account per ton is as follows:

	<u>Sales</u>	<u>Sundry Revenue</u>	<u>Labor Material Etc.</u>	<u>General Charges</u>	<u>Depn. & Depletion</u>	<u>Selling & Adm. Expense</u>	<u>Profit or Loss</u>
1930	\$ 4.427	\$.214	\$ 3.115	\$.357	\$.661	\$.442	\$.066
1931	4.297	.473	3.504	.388	.572	.883	-.577
1932	3.975	.531	3.432	.385	.387	.842	-.540
1933	3.711	.420	3.204	.375	.388	.807	-.643
1934	3.332	.505	3.138	.328	.320	.790	-.739
1935	3.449	.564	2.971	.397	.340	.890	-.785
1936	3.449	.307	2.869	.325	.329	.837	-.604
1937	3.574	.256	2.863	.345	.324	.791	-.493
1938	3.746	.344	3.139	.344	.320	.719	-.429
1939	3.927	.453	3.379	.409	.356	.801	-.565
1940	4.098	.293	3.339	.442	.358	.841	-.589
1941	4.186	.221	3.134	.476	.324	.942	-.469
1942	4.543	.169	3.425	.429	.290	.821	-.253
1943	4.568	.171	3.867	.509	.298	.831	.150
1944	4.846	.239	4.944	.729	.316	.907	.128

For the years 1932 to 1944 annual bond interest of \$3,564.00 has been waived by the holders.

Subsidies have been received for 1943 and 1944 amounting to \$65,731.73 at the rate of \$.916 and \$1.939 per ton. These subsidies are included in the above results.

The greater part of the coal is sold to retailers and wholesalers.

PRODUCTION PER MIN-DAY

1941	2.91 Tons
1942	2.03 "
1943	1.80 "
1944	1.80 "

PRODUCTION

<u>Year</u>	<u>Production Tonnage</u>
1930	40,688
1931	25,717
1932	20,068
1933	20,059
1934	21,724
1935	18,904
1936	19,877
1937	20,509
1938	20,910
1939	17,621
1940	17,602
1941	20,350
1942	24,014
1943	24,325
1944	<u>22,410</u>
	<u>334,778</u>

RECAPITULATION

Using representative years 1930 - 1935 - 1939 and 1944, the undernoted are comparative figures of certain aspects of the operations of the Company:-

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Valuation of Properties (Net)	\$284,524.91	\$289,236.60	\$272,341.04	\$243,025.11
Net Current position	60,187.82	2,300.47	- 26,503.58	- 13,660.21
Surplus	147,839.25	68,956.79	24,376.90	9,859.23
Reserves	11,573.50	533.21		-
Operating Profit or Loss	2,675.21	-14,853.42	- 9,941.09	2,859.66
Production - Tonnage	40,688	18,904	17,621	22,410
- Tons per man	-	-	-	1.80
Total mining and operating costs, including depreciation and depletion - Per ton	4.575	4.598	4.945	6.896
Average selling price - per ton	4.427	3.449	3.927	4.846

Mr. Morrison submits -

EXHIBIT 314 - Financial Statements 1930 - 1944,
Big Horn and Saunders Creek
Collieries Limited, Saunders Creek,
Alta - Corporate History and
Summary of Operating Experience.

(Supported by Exhibit "NN" for identification)

Big Horn operates in the Saunders Creek area and has a capital of \$228,200.00. Bonds are also outstanding in the amount of \$200,000.00, which were issued in respect of coal properties. Up to 1944 interest is unpaid to the total of \$243,772.60.

FINANCIAL POSITION - 1944

Assets

Net Properties	\$196,799.87
Deferred	1,732.12
Net Current Position	<u>41,939.29</u>
	<u><u>\$240,471.28</u></u>

Liabilities

Capital	\$228,200.00
Funded Debt	200,000.00
Do Accrued Interest	243,772.60
Deficit	<u>-431,501.32</u>
	<u><u>\$240,471.28</u></u>

Net Capital additions have been made 1930 - 1944 to the extent of \$18,763.55.

No dividends have been paid during the period.

OPERATING RESULTS

1930	\$-25,848.31	1936	\$-17,058.59	1940	\$ -12,667.78
1931	-34,602.34	1937	-13,744.80	1941	-18,685.80
1932	-48,704.90	1938	-18,340.86	1942	2,232.71
1933	-51,534.73	1939	<u>-20,683.03</u>	1943	- 3,728.91
1934	-56,191.04			1944	<u>2,241.28</u>
1935	<u>-21,574.74</u>				
		<u>TOTAL</u>	<u>\$ - 338,891.84</u>		

A subsidy for the year 1944 is included at the rate of \$.323 per ton, or \$12,374.69.

Per ton statement of operation is summarized below:

	<u>Sales</u>	<u>Sundry Revenue</u>	<u>Mining Cost</u>	<u>General Charges</u>	<u>Depn. & Depletion</u>	<u>Adm., Int. & Sundry Charges</u>	<u>Profit or Loss</u>
1930	\$4.237	\$.317	\$ 3.687	\$.140	\$.300	\$ 1.343	\$ - .916
1931	4.036	.385	3.662	.149	.100	2.443	-1.933
1932	3.92	.43	3.15	.17	.84	3.21	-3.02
1933	3.66	.37	2.98	.17	.78	3.06	-2.96
1934	3.58	.43	3.08	.18	.93	3.71	-3.89
1935	3.60	.37	2.89	.17	.70	1.27	-1.06
1936	3.50	.39	3.06	.20	.66	.76	- .79
1937	3.552	.346	2.987	.203	.637	.668	- .597
1938	3.577	.256	3.018	.192	.686	.799	- .862
1939	3.499	.344	3.181	.195	.665	.737	- .935
1940	3.702	.300	3.085	.204	.613	.617	- .517
1941	3.943	.249	3.526	.254	.494	.499	- .581
1942	4.206	.224	3.310	.284	.332	.451	.053
1943	4.616	.300	3.965	.422	.183	.445	- .099
1944	5.023	.257	4.473	.430	.180	.462	(x) .058

(x) Includes subsidy claimed of \$.323 per ton.

PRODUCTION - TONNAGE and PER MAN-DAY OUTPUT

	<u>Tonnage</u>	<u>Per Man-Day Output</u>
1930	27,900	3.45
1931	17,900	4.19
1932	16,109	2.21
1933	17,444	2.43
1934	14,430	2.25
1935	20,311	1.9
1936	21,517	2.15
1937	23,017	2.34
1938	21,262	2.51
1939	22,113	2.42
1940	24,482	2.48
1941	32,141	2.23
1942	42,218	2.342
1943	37,769	2.137
1944	<u>38,283</u>	2.162
	<u>376,896</u>	

RECAPITULATION

Using representative years 1930 - 1935 - 1939 and 1944, the following are comparative figures of certain aspects of the operations of the Company:-

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Valuation of Properties (Net)	\$476,682.63	298,721.84	250,897.67	196,799.87
Net current position	33,412.09	12,883.25	5,392.18	41,939.29
Surplus or Deficit	-124,642.94	-335,049.80	-406,514.66	-431,501.32
Bond interest unpaid	207,753.13	219,772.60	235,772.60	243,772.60
Operating Profit or Loss	- 25,848.31	- 21,574.74	- 20,683.03	2,241.28
Production - Tonnage	27,900	20,311	22,113	38,283
- Tons per man	3.45	1.9	2.42	2.162
Total mining and operating costs, including depreciation, depletion and interest on bonds - Per ton	5.470	5.03	4.778	5.545
Average selling price Per ton	4.237	3.60	3.499	5.023

Mr. Morrison submits -

EXHIBIT 315 - Financial Statements 1930 - 1944,
Foothills Collieries Limited,
Foothills, Alberta - Corporate
History and Summary of Operating
Experience.

(Supported by Exhibit "00" for identification)

FINANCIAL POSITION - 1944

Assets

Net Property Value	\$ 164,627.36
Deferred	4,993.85
Net Current Position	<u>- 60,753.12</u>
	<u><u>\$ 108,868.09</u></u>

Liabilities

Share Capital	\$ 186,570.00
Deficit	<u>- 77,701.91</u>
	<u><u>\$ 108,868.09</u></u>

Comparison of the 1930 and 1944 Balance Sheet shows an increase in the Property account of \$109,180.44.

Subsidies have been claimed for 1943 and 1944 totalling \$73,811.40 at the rate of \$.159 and \$.665 respectively.

OPERATING RESULTS

1930	\$ -6,833.70	1938	\$ -5,359.29
1931	639.76	1939	-1,570.77
1932	- 1,261.00	1940	-1,695.50
1933	-11,031.67	1941	-4,050.20
1934	- 4,181.65	1942	263.44
1935	- 2,511.16	1943	978.79
1936	- 4,959.66	1944	<u>4,984.87</u>
1937	<u>- 8,951.64</u>		

TOTAL - \$ - 45,539.38

A further analysis per ton of the profit and loss account is as follows:

	<u>Sales</u>	<u>Mining Costs</u>	<u>General Charges</u>	<u>Depn. Depletion & Development</u>	<u>Adm.</u>	<u>Sundry Revenue</u>	<u>Profit or Loss</u>
1930	\$3.714	\$ 3.278	\$.259	\$.229	\$.121	\$.077	\$ - .096
1931	3.632	3.172	.217	.270	.181	.219	.011
1932	3.692	3.162	.259	.349	.191	.238	- .031
1933	3.398	3.153	.267	.371	.183	.275	- .301
1934	3.025	2.809	.240	.319	.163	.408	- .098
1935	2.876	2.513	.237	.275	.139	.234	- .054
1936	2.821	2.517	.237	.193	.164	.202	- .088
1937	2.899	2.700	.279	.202	.165	.254	- .193
1938	2.906	2.623	.320	.151	.118	.199	- .107
1939	3.077	2.826	.409	.009	.220	.341	- .046
1940	2.977	2.738	.359	.050	.168	.292	- .046
1941	3.033	2.774	.334	.066	.174	.219	- .096
1942	3.248	2.720	.288	.256	.153	.173	.004
1943	3.025	2.638	.288	.270	.126	# .308	.011
1944	3.215	3.107	.383	.300	.138	# .770	.057

All sales are made to the Windatt Coal Co. Ltd., who sell at an advance of 50¢ per ton for lump, stove and nut sizes, and 25¢ per ton for pea and slack.

Includes subsidies claimed.

PRODUCTION and PER MAN-DAY OUTPUT

	<u>Production Tonnage</u>	<u>Per Man-Day Output</u>
1930	69,048	2.77 tons
1931	43,895	2.74
1932	45,594	2.62
1933	45,417	2.61
1934	45,170	2.56
1935	56,617	2.77
1936	55,939	2.88
1937	50,369	2.77
1938	49,948	2.80
1939	46,432	2.80
1940	46,477	2.80
1941	54,709	3.22
1942	95,792	3.40
1943	90,455	3.23
1944	<u>117,203</u>	3.83
	<u>913,065</u>	

RECAPITULATION

The following are comparative figures for the years 1930 - 1935 - 1939 and 1944, of certain aspects of the operations of the Company:-

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Valuation of Properties (Net)	\$173,519.13	140,723.25	168,893.46	164,627.36
Net current position	- 56,048.65	-41,424.31	-64,994.27	-60,753.12
Surplus or deficit	- 68,229.02	-86,277.75	-80,339.77	-77,701.91
Annual operating Profit or Loss	- 6,833.70	- 2,511.16	- 1,570.77	4,984.87
Production - tonnage	69,048	56,617	46,432	117,203
- Tons per man	2.77	2.77	2.80	3.83
Total mining operating costs, including depreciation & depletion - Per ton	\$ 3.887	3.164	3.464	3.928
Average selling price Per ton	\$ 3.714	2.876	3.077	3.215

Mr. Morrison submits -

EXHIBIT 316 - Financial Statements 1930 - 1944,
Lothbridge Collieries Limited,
Lethbridge, Alberta - Corporate
History and Summary of Operating
Experience

(Supported by Exhibit "PP" for identification)

The authorized and issued Share Capital of Lethbridge Collieries Limited consists of 60,000 "A" Shares and 100,000 "B" Shares, which at the incorporation of the Company in 1935 had a par value of \$10.00 each.

60,000 "A" Shares and 60,000 "B" Shares, having a par value of \$1,200,000.00, were issued to acquire certain Fixed Assets and Inventories of Stores of the three predecessor Companies. 40,000 "B" Shares were subsequently issued at their par value for a cash consideration of \$400,000.00.

In October 1941 the Share Capital was reduced by \$200,000.00 representing a reduction in the par value of each class of shares to \$8.75 per share.

This reduction in Share Capital was in the form of a cash repayment to Shareholders of \$84,800.00 and a writing-off of disused Assets of \$68,214.71, and \$46,985.29 of Capital charges as distinct from Operating charges incurred by the Company.

FINANCIAL POSITION - 1944

Assets

Net Property Value	\$ 1,015,983.73
Deferred	20,276.57
Net Current Position	<u>507,353.61</u>
	<u>\$ 1,543,613.91</u>

Liabilities

Capital	\$ 1,400,000.00
Surplus	<u>143,613.90</u>
	<u>\$ 1,543,613.91</u>

Comparison of the Balance Sheets in 1936 and 1944 shows that net property additions have been made of \$267,716.23. During the period reviewed total dividend payments were \$306,000.00.

OPERATING RESULTS

	Before <u>Income Tax</u>	After <u>Income Tax</u>	<u>Taxable Income</u>
1936	\$ 84,905.96	\$ 73,905.96	\$ 56,873.16
1937	5,365.22	5,365.22	3,199.05
1938	57,974.68	49,689.45	39,467.92
1939	37,933.76	35,406.85	17,451.23
1940	365.03	- 2,524.05	- 18,516.10
1941	35,368.41	33,840.19	12,130.33
1942	46,707.25	40,082.40	22,949.47
1943	227,182.77	128,024.67	182,029.83
1944	<u>40,229.93</u>	<u>34,702.16</u>	<u>1,300.57</u>
	<u>\$ 536,033.01</u>	<u>\$ 398,492.85</u>	<u>\$ 316,885.46</u>

The column showing results after income tax incorporates the charges made during the year to the surplus account. The main factor accounting for the difference between profit before income tax and taxable income is that depletion claimed is not set up in the books of account.

A per ton analysis of the Profit and Loss account is summarized below:

	Sales	Sundry Revenue	Labor Material & Power	Other Charges	Depn.	Admin. Selling	Profit Before Taxes
1936	\$ 3.154	\$.153	\$ 2.176	\$.312	\$.244	\$.266	\$.309
1937	2.774	.070	1.929	.297	.274	.323	.021
1938	3.223	.110	2.184	.306	.288	.320	.235
1939	3.288	.131	2.358	.311	.303	.288	.159
1940	3.299	.137	2.472	.339	.338	.285	.002
1941	3.330	.137	2.392	.340	.317	.264	.154
1942	3.454	.101	2.450	.338	.363	.238	.166
1943	3.507	.155	2.375	.346	.302	.170	.469
1944	3.691	.205	2.863	.418	.336	.189	.090

Up to 1944 there were no subsidies received by this Company.

The majority of the coal is sold to dealers.

PRODUCTION and PER MAN-DAY OUTPUT

	<u>Production Tonnage</u>	<u>Per Man-Day Output</u>
1936	280,852	3.48
1937	255,903	2.69
1938	253,440	3.28
1939	244,950	3.27
1940	224,675	3.04
1941	234,615	3.31
1942	287,522	3.47
1943	491,568	3.85
1944	<u>455,568</u>	3.46
	<u><u>2,729,071</u></u>	

Mr. Morrison submits -

EXHIBIT 317 - Financial Statements 1930 - 1944,
Birnwel Coal Limited, Taber, Alta.

(Supported by Exhibit "22" for identification)

Birnwel Coal Limited was incorporated on 1st September, 1943, under the provisions of the Companies Act (Alberta), with an authorized capital of 100,000 shares of no par value, with the moneys received therefrom not to exceed the aggregate sum of \$20,000.00.

Birnwel leased certain lands for the mining of coal from Kleenbirn Collieries Limited, under an agreement dated 8th September, 1943, for 1,000 shares of no par value, at five cents per share and other consideration.

Funds to operate were provided up to 30th June, 1944, by the Emergency Coal Production Board guaranteeing a bank overdraft. On that date, a new contract was entered into whereby the Board provided the following loans to liquidate liabilities then existing:-

Capital Loan	\$45,860.65
Operating Loan	<u>185,058.42</u>
	<u>\$ 230,919.07</u>

A summary of the transactions with the Board is as follows:-

	<u>Capital</u>	<u>Operating</u>	<u>Total</u>
Original Loans	\$45,860.65	\$185,058.42	\$230,919.07
Additional Advances	31,295.04	325,955.51	357,250.55
Trust Account	<u>12,301.53</u>	<u>186,500.14</u>	<u>198,801.67</u>
	\$89,457.22	\$697,514.07	\$786,971.29
Less Repayments	<u>89,457.22</u>	<u>411,169.71</u>	<u>500,626.93</u>
Liability as at 30th June, 1945		<u>\$286,344.36</u>	<u>\$286,344.36</u>

On 31st May, 1945, the Emergency Coal Production Board took over the management of Birnwel, as the June, 1944 agreement did not work out satisfactorily.

The agreement with Kleenbirn provided for a royalty of ten cents per ton on coal mined, but in the agreement with the

Emergency Board, no royalties were to be payable. These royalties have been set up in the books, but have not been paid. The operations would show the following results if these royalties are found to be not payable:-

<u>1 9 4 4</u>	Loss	\$ - 11,780.00
	Royalties charged	<u>2,420.00</u>
	Loss, excluding Royalties	<u>- 9,360.00</u>
<u>1 9 4 5</u>	Profit	\$ 12,045.06
	Royalties charged	<u>12,754.70</u>
	Profit, excluding Royalties	<u>\$ 24,799.76</u>

In the above results, no charges are included for depreciation and depletion.

Coal was sold during the first year, mainly through the Coal Allocation Office, in Calgary. On 21st June, 1944, a contract was made with the Fuel Underwriters of Canada, providing for the outright sale of coal to the selling agency. Actually, the coal was sold on a commission basis, as the difference between the resale price and the contracted price to the Agency, only, was set up as an account payable in the books of Birnwel. Fuel Underwriters and Birnwel have the same directorate, and a copy of the agreement is attached hereto.

BIANFEL COAL LIMITEDBALANCE SHEETS AS AT 30th JUNE, 1944 and 1945.A S S E T S

	<u>30th June, 1944</u>	<u>30th June, 1945</u>
<u>Current</u>		
Cash and Bank Balances	\$ 1,169.48	\$33,197.39
Accounts Receivable - Not	524.35	812.79
Inventories of Supplies	<u>1,695.83</u>	<u>8,111.58</u>
		\$ 42,121.76
<u>Fixed Assets</u>	<u>137,229.41</u>	<u>186,719.82</u>
<u>Deferred</u>		
Stripping	\$ 79,082.30	\$92,104.88
Insurance etc.	1,390.78	3,589.55
Organization Expense	<u>229.80</u>	<u>229.80</u>
	80,702.88	95,924.21
<u>Deficit Account</u>	<u>11,780.03</u>	<u>5,677.12</u>
	<u>\$231,406.15</u>	<u>\$330,442.91</u>

L I A B I L I T I E S

	<u>30th June, 1944</u>	<u>30th June, 1945.</u>
<u>Current</u>		
Royal Bank of Canada	\$ 49,783.22	
Accts. Payable	<u>120,385.29</u>	<u>\$58,462.10</u>
	\$170,167.51	
The Emergency Coal Production Board	<u>61,186.64</u>	<u>291,928.81</u>
<u>Capital</u>		
Share Capital		
Issued and fully paid - 1,002 Shares of no par value	<u>52.00</u>	<u>52.00</u>
	<u>\$231,406.15</u>	<u>\$330,442.91</u>

BIRNWEI COAL LIMITEDOPERATING STATEMENT FOR THE PERIOD ENDED
30th June, 1944.

	<u>Tons</u>	<u>Per Ton</u>	<u>Amount</u>
Sales	<u>24,200</u>	<u>\$5.813</u>	<u>\$ 92,269.54</u>
<u>Deduct Costs</u>			
<u>Operation</u>			
Stripping		\$1.635	\$ 39,565.70
Coal Loading - Shovel		.363	8,781.03
- Wages			
Tipple and Ramp Expense		.244	5,907.19
Trucking Expense		.062	1,491.09
Local Bunker Expense		.060	1,443.11
Scale Costs		.054	1,303.46
Road Maintenance		.001	40.00
Camp Maintenance		.022	530.00
Supplies		.100	2,411.84
Boarding House Expenses		.008	209.78
Fire Insurance		.031	764.00
Test Holes Expense		.011	284.27
General Expenses		.001	42.09
		<u>\$ 2.592</u>	<u>\$ 62,773.89</u>
<u>General Charges</u>			
Freight and Cartage			
Demurrage		\$.011	\$ 257.11
Overload and Diversion			
Workmen's Compensation Board		.039	934.80
Royalties		.100	2,420.00
Spur Track Rentals		.037	897.03
Insurance			
Interest		.054	1,305.56
Legal Fees		.005	133.42
Memberships and Publications		.005	114.51
Postage		.006	147.63
Printing and Stationery		.034	827.13
Telephone and Telegraph		.039	953.94
Executive Salaries		.417	10,100.00
Travelling Expense		.143	3,460.53
Administration - Mine Office		.245	5,923.97
- Calgary Office		.079	1,903.00
Exchange		.003	78.22
Sundry		.003	80.15
Taxes			
Unemployment Insurance		.004	108.90
Audit Fees		.011	250.00
		<u>\$ 1.235</u>	<u>\$ 29,895.90</u>
<u>Deduct Costs (Cont'd)</u>			
<u>Trucking Expense, etc.</u>			
Trucking - Shipping Sales		\$.419	\$ 10,131.96
Local Sales		.083	2,017.77
Allowances		.007	178.40
Advertising		-	22.50
		<u>\$.509</u>	<u>\$ 12,350.63</u>
<u>Total Costs</u>		<u>\$4.336</u>	<u>\$105,020.42</u>
		<u>\$-.523</u>	<u>\$-12,750.88</u>
<u>Sundry Revenue - Truck</u>		<u>\$.032</u>	<u>\$ 771.00</u>
<u>Cost of Living Bonus</u>		<u>.008</u>	<u>199.85</u>
		<u>\$.040</u>	<u>\$ 970.85</u>
<u>PROFIT or LOSS</u>		<u>\$-.483</u>	<u>\$-11,780.03</u>

BIRNWEI COAL LIMITEDOPERATING STATEMENT FOR THE PERIOD ENDED
30th June, 1945.

	<u>Tons</u>	<u>Per Ton</u>	<u>Amount</u>
<u>Sales</u>	<u>127,543</u>	<u>\$3.655</u>	<u>\$ 466,187.01</u>
<u>Deduct Costs</u>			
<u>Operation</u>			
<u>Stripping</u>		\$1.830	\$233,400.98
Coal Loading - Shovel		.141	17,964.50
- Wages		.011	1,400.38
Tipple and Ramp Expense		.284	36,161.61
Trucking Expense		.006	708.94
Local Bunker Expense		.005	595.32
Scale Costs		.012	1,488.65
Road Maintenance		.025	3,184.02
Camp Maintenance		.048	6,128.45
Supplies		.001	117.02
Boarding House Expenses		.029	3,736.18
Fire Insurance		.020	2,593.37
Test Holes Expense		.010	1,222.44
General Expenses		.002	240.01
		<u>\$ 2.424</u>	<u>\$ 308,941.87</u>
<u>General Charges</u>			
Freight and Cartage	\$.012	\$	1,516.72
Demurrage	\$.010	\$	1,230.00
Overload and Diversion	-		30.67
Workmen's Compensation Board	.023		2,967.29
Royalties	.100		12,754.70
Spur Track Rentals	.004		530.17
Insurance	.001		132.18
Interest	.060		7,716.08
Legal Fees	.023		2,922.89
Memberships and Publications	.001		136.41
Postage	.003		440.99
Printing and Stationery	.006		802.16
Telephone and Telegraph	.021		2,708.07
Executive Salaries	.100		12,833.30
Travelling Expenses	.029		3,672.72
Administration - Mine Office	.063		8,034.33
- Calgary Office	.043		5,512.33
Exchange	.003		372.78
Sundry	.002		270.83
Taxes	.011		1,370.30
Unemployment Insurance			
Audit Fees			
	<u>\$.515</u>		<u>\$ 65,954.92</u>
<u>Deduct Costs (Cont'd).</u>			
<u>Trucking Expense, etc.</u>			
Trucking - Shipping Sales	\$.602	\$	76,750.14
Local Sales	.038		4,873.37
Loading from Stock Pile	.014		1,740.22
	<u>\$.654</u>		<u>\$ 83,365.73</u>
<u>Total Costs</u>	<u>\$3.593</u>		<u>\$458,262.52</u>
	<u>\$.062</u>		<u>\$ 7,924.49</u>
<u>Sundry Revenue - Truck</u>	<u>\$.032</u>		<u>\$ 4,120.57</u>
<u>PROFIT or LOSS</u>	<u>\$.094</u>		<u>\$ 12,045.06</u>

Mr. Morrison submits -

EXHIBIT 318 - Financial statements 1930 - 1944,
Camrose Collieries Limited,
Camrose, Alberta.

(Supported by Exhibit "RR" for identification)

Camrose Collieries was formed in the fall of 1943, with a share capital of \$300.00, which is still shown as being due from shareholders. The Company has been financed by the Emergency Coal Production Board, which has made advances of which \$294,343.26 was outstanding on 30th April, 1945.

The Company owns 640 acres of surface rights which are not as yet proven coal bearing and leases six legal subdivisions from the Province of Alberta under a yearly rental of \$1.00 per acre and a royalty of five cents per ton. Coal rights obtained from the C.P.R. are also held on further three subdivisions on a yearly rental basis of \$1.00 per acre and ten cents per ton royalty.

Coal sales are handled through the Camcoal Sales, the selling agency of Camrose Collieries Limited, at a retail price less a commission of twenty-five cents per ton. This selling agency was necessary, due to the fact that the Emergency Coal Production Board required the Camrose Company to sell all coal for cash unless sold through recognized wholesalers whose credit had been approved by the Board. Coal is also sold through such approved wholesalers on a commission basis of twenty-five cents per ton for lump and egg coal, fifteen cents on stoker coal and ten cents on slack.

The operation is purely stripping, and has been done by sub-contractors on a yardage basis, using Caterpillar tractors, power scraper units and bulldozers. The overburden varies in depth from twenty to thirty feet and the coal seam has an average thickness of four feet. Average ratio of overburden to coal is four to one.

No production subsidies have been paid to this Company, but the Emergency Coal Production Board supplies it with

moneys as required, both for capital and operation, and are subject to interest at three per cent. All revenues, from all sources, are remitted to the Federal Treasury monthly.

BALANCE SHEETS AS AT 30th APRIL, 1944 and 1945.

A S S E T S

1 9 4 4

1 9 4 5

CURRENT

Cash and Bank

Balance \$ 750.92

Accts. Receivable 1,101.80

Do. -

Shareholders 300.00

Inventory of coal \$ 2,152.72

\$ 8,876.63

4,218.50

300.00

17,102.27 \$ 30,497.40

FIXED

Land 13,050.50

Buildings, machinery, etc.

152,817.95

165,868.45

13,050.50

184,849.32

197,899.82

Less Reserve for

Depletion 3,009.60

8,778.00

Reserve for

Depreciation 162,858.85

9,544.03 179,577.79

Development

Stripping less

Charged to operations

53,337.36

12,960.00

Deferred Charges and Preliminary Expenses

1,064.85

4,276.61

Deficit

21,801.41

80,286.50

\$ 241,215.19

\$ 307,598.30

L I A B I L I T I E S

1 9 4 4

1 9 4 5

Current

Bank of Montreal \$ 76,009.37

Accts. Payable

re operations 28,105.77

\$12,955.04

Payroll & Manager 2,632.08

Accts. Payable re

Capital expenditures

55,803.17 \$162,550.39

\$ 12,955.04

Advances

Emergency Coal

Production Bd.

On account of

Capital Expenditures

\$ 78,364.80

\$ 15,806.92

Operation

129,397.51

Budget Advances \$ 78,364.80

149,138.83 294,343.26

Share Capital

300.00

300.00

\$241,215.19

\$307,598.30

STATEMENT OF CAPITAL ASSETS and DEPRECIATION

	<u>Asset Value</u>		<u>Depreciation</u>
	<u>30th April 1944</u>	<u>30th April 1945</u>	<u>Reserve 30th April, 1945</u>
Sidings	\$ 11,869.93	\$ 15,209.69	\$ 760.48
Roads	5,100.22	5,100.22	255.01
Drains	3,830.37	3,785.69	189.28
Tipple	49,354.62	72,505.40	3,625.27
Ramp	16,377.84	16,377.84	818.89
Power and Light Installations	3,743.74	3,743.74	187.18
Buildings	37,124.47	40,165.29	2,008.26
Water Well	787.82	787.82	39.39
Scales	2,154.06	2,154.06	107.70
Machinery	10,506.34	6,737.94	336.89
Sewer and Water Installations	5,639.90	5,639.90	281.99
Prospecting	4,632.87	4,700.80	235.04
Furniture & Fixtures	864.17	864.17	43.21
Small tools	98.80	453.86	22.69
Gravel	100.00	100.00	25.00
Fire Equipment	632.80	632.80	31.64
Trucks		5,632.10	563.21
Horses and Equipment		258.00	12.90
	<u>\$ 152,817.95</u>	<u>\$184,849.32</u>	<u>\$ 9,544.03</u>

STATEMENT OF OPERATIONS FOR YEAR ENDING 30th APRIL, 1944.

	<u>Tons</u>	<u>Per Ton</u>	<u>Amount</u>
<u>Sales</u> - Local Domestic	2,611	\$ 4.36	\$ 11,391.58
Army Camps	6,114	4.15	25,373.10
Wholesalers	1,436	4.15	5,959.40
Industrial	133	4.15	551.95
Utility Companies	4,754	1.90	9,032.60
	<u>15,048</u>	<u>\$ 3.476</u>	<u>\$ 52,308.63</u>
<u>Deduct</u>			
<u>Operating Costs</u>			
Stripping		\$.931	\$ 14,005.68
Digging and Trucking		1.286	19,351.36
Clay Picking		.251	3,771.40
Power		.032	492.26
Road and Grounds Maintenance		.006	76.50
Screening		.992	14,927.06
Insurance		.028	418.49
Drainage Expense		.018	274.42
General Repairs and Maintenance		.035	536.33
Lease Rentals		.015	230.00
Area Testing		.008	105.50
		<u>\$ 3.602</u>	<u>\$ 54,189.00</u>
<u>General Charges</u>			
Salaries and Wages		.556	8,428.49
Interest and Exchange		.084	1,275.17
Royalties		.050	752.40
Travelling Expense		.141	2,124.80
Workmen's Compensation Board		.025	388.62
Miscellaneous		.115	1,732.33
Office Rent		.020	300.50
Telephone and Telegraph		.021	313.47
Printing, Postage and Stationery		.038	566.45
Unemployment Insurance		.004	65.86
		<u>\$ 1.054</u>	<u>\$ 15,948.09</u>
<u>Delivery and Selling Expenses</u>			
Delivery Expense		\$.064	\$ 963.35
<u>Total Costs</u> before Depletion and Depreciation		<u>\$ 4.720</u>	<u>\$ 71,100.44</u>
Depletion		<u>\$.200</u>	<u>\$ 3,009.60</u>
<u>Total Costs</u> after Depletion and Depreciation		<u>\$ 4.920</u>	<u>\$ 74,110.04</u>
<u>LOSS FOR YEAR</u>		<u>\$ -1.444</u>	<u>\$ -21,801.41</u>

STATEMENT OF OPERATIONS FOR YEAR ENDING 30th April, 1945.

	<u>Tons</u>	<u>Per Ton</u>	<u>Amount</u>
<u>Sales</u> - Local Domestic	19,197	\$3.50	\$67,227.62
Army Camps	5,728	5.60	32,076.80
Wholesalers	3,460	3.43	11,867.80
Industrial	457	1.70	776.90
	28,842		111,949.12
Inventory	12,316		17,102.27
Sundry Income - Farm			1,736.57
	<u>\$41,158</u>	<u>\$3.178</u>	<u>\$130,787.96</u>

DeductOperating Costs

Stripping	\$ 1.924	\$ 79,185.75
Digging & Trucking	.700	28,845.26
Clay Picking	.079	3,275.41
Truck Maintenance	.077	3,185.31
Tipple Maintenance	.070	2,898.70
Power	.055	2,269.57
Road and Ground Maintenance	.050	2,067.35
Screening	.040	1,647.07
Insurance	.033	1,365.52
Drainage Expense	.031	1,283.27
General Repairs and Maintenance	.010	438.84
Lease Rentals	.008	323.16
Taxes	.006	260.51
Area Testing	.003	142.60
	<u>\$ 3.086</u>	<u>\$127,188.30</u>

General Charges

Salaries and Wages	\$.270	\$ 11,103.40
Interest and Exchange	.181	7,927.99
Royalties	.050	1,442.10
Travelling Expense	.031	1,297.93
Workmen's Compensation Board	.029	1,220.64
Miscellaneous	.016	738.80
Office Rent	.010	420.00
Telephone and Telegraph	.007	300.36
Printing, Postage & Stationery	.006	275.80
Legal Fees	.004	178.95
Unemployment Insurance	.003	128.41
	<u>\$.607</u>	<u>\$ 25,034.39</u>

Delivery and Selling Expense

Delivery Expense	\$.267	\$ 10,997.69
Commissions	.071	2,049.28
Loading Railway Cars	.023	963.72
Siding Rental and Maintenance	.020	862.54
Freight and Express	.020	845.62
Advertising	.006	279.72
	<u>\$.407</u>	<u>\$ 15,998.57</u>

Total Costs before Depletion and Depreciation\$4,100 \$168,221.26

Depletion

\$.140 \$ 5,768.40

Depreciation

.231 9,544.03

\$.371 \$ 15,312.43Total Costs after Depletion and Depreciation\$4.471 \$183,533.69Special Expense - Loading and Returning Contractors' Equipment\$.127 \$ 5,759.36LOSS FOR YEAR- \$1.420 \$-58,485.09

Mr. Morrison submits -

EXHIBIT 319 - Financial Statements 1930 - 1944,
Castor Creek Collieries Limited,
Castor, Alberta.

(Supported by Exhibit "SS" for identification).

The Castor Creek Collieries was incorporated in July of 1943, at the request of the Emergency Coal Production Board, to open up a strip mine at Castor, Alberta.

The Winnipeg Supply and Fuel Company Limited subscribed for 20,000 shares for \$10,000.00 in cash, and received 150,000 shares for leases, which were set up on the books at \$75,000.00.

The Secretary of the Company makes the following statement:-

"Owing to the difficulty in obtaining materials for construction of plant, the tipple was not ready for operation until February, 1944. During that winter some 1,250 tons of coal were sold from the Pit, for the sum of \$3,266.29, and as the emergency was over for that period, no further coal was shipped until the fall of 1944. Fortunately, there was no emergency in the West last fall and winter, and there was only a small amount of coal required from this Project. The total amount of coal sold during the whole season was only 4,571 tons, at a value of \$11,598.93."

Leases consist of:-

160 acres C. P. R. land, at \$1.00 per acre rental and a royalty of 10 cents per ton.

147 acres Province of Alberta Land, at \$1.00 per acre rental and a royalty of 5 cents per ton.

Included in the C.P.R. Lease is forty acres owned by Mr. J. Haden, who owned the rights for mining of coal on this property and from whom Castor Creek Collieries purchased them. He is paid a royalty of five cents per ton with a guaranteed minimum of \$500.00 per year.

BALANCE SHEET AS AT 30th JUNE, 1945.THE EMERGENCY COAL PRODUCTION BOARD FUNDSA S S E T SFixed

Buildings	\$ 15,244.63	
Land	7,481.62	
Power & Light Installations	3,482.22	
Roads	1,957.67	
Siding	7,462.37	
Tipple	52,380.43	
Sundry	9,926.08	
Sundry Equipment	4,640.09	
Shop	4,638.81	
Incorporation Expense	<u>1,252.47</u>	\$108,466.39

Deferred Asset

Payments on Shovel	14,000.00
--------------------	-----------

Prepaid Expenses

1,729.02

Current

Cash in Bank	\$ 22.10	
Accounts Receivable	25.78	
Inventories - Supplies	1,048.80	
- Coal in Pit	<u>34,508.38</u>	35,605.06

Loss on Operations

42,366.48

\$202,166.95COMPANY FUNDSFixed

Trust	\$ 2,172.88	
Less Depreciation Reserve	<u>1,086.44</u>	\$ 1,086.44

Current

Cash on Hand and in Bank	2,707.52
Leases	75,000.00
Due from Shareholders	<u>6,206.04</u>
	<u>\$ 85,000.00</u>

L I A B I L I T I E SEMERGENCY COAL PRODUCTION BOARD FUNDSThe Emergency Coal Production Bd.

Capital Loans	\$ 97,065.82	
Working Capital Loans	<u>104,710.96</u>	\$201,776.78
Accounts Payable		<u>390.17</u>
		<u>\$202,166.95</u>

COMPANY FUNDSShare Capital

Authorized - 300,000 Shares
of 50 cents each

Issued - 170,000 Shares
of 50 cents each

\$ 85,000.00

PROFIT AND LOSS ACCOUNT TO 30th JUNE, 1945.

		<u>Per Ton</u>
Sales - 4,571 Tons	\$11,598.93	\$2.538
<u>Operating Expense</u>		
Stripping	\$16,088.03	
Workmen's Compensation		
Board	485.38	
Wages	13,397.27	
Stores & Miscellaneous	7,264.90	
Siding Rental	295.17	
Power	988.20	
Royalties	1,456.80	
Insurance	1,546.30	
Rentals on Leases	220.00	
Administration	1,800.00	
Interest & Exchange	438.28	
Miscellaneous - Sundry	1,676.83	
Telephone & Telegrams	507.27	
Int. on Gov't Loans	6,069.40	
Travelling	633.19	
Taxes	949.12	
Freight	<u>149.27</u>	
<u>Total Expenses</u>	<u>\$53,965.41</u>	<u>11.806</u>
<u>Net Loss on Operation</u>	<u>\$42,366.48</u>	<u>\$ 9.268</u>

Mr. Morrison submits -

EXHIBIT 520 - Financial Statements 1930 - 1944,
Continental Coal Corporation Ltd.,
Grassy Lake, Alberta.

(Supported by Exhibit "TT" for identification)

BALANCE SHEET AS AT 31st DECEMBER, 1944.

GRASSY LAKE OPERATIONS

ASSETS

<u>Plant and Equipment</u>		\$151,293.66
<u>Deferred</u>		1,088.81
<u>Current</u>		
Cash in Bank	\$1,879.86	
Accounts Receivable	11,492.42	
Inventory of Coal		
On Bank)	16,000.00	
In Pits) 101,000 Tons	<u>107,630.00</u>	<u>137,002.28</u>
<u>Deficit on Operations,</u>		\$ 289,384.75
to 31st December, 1944		<u>71,330.43</u>
		<u><u>\$360,715.18</u></u>

LIABILITIES

<u>The Emergency Coal Production Board</u>		
Advances for Acquisition of		
Fixed Assets	\$ 91,395.71	
Advances for Production	224,866.66	
Interest Accrued	<u>2,442.63</u>	\$318,705.00
<u>Accounts Payable</u>		<u>42,010.18</u>
		<u><u>\$360,715.18</u></u>

STATEMENT OF OPERATIONS TO 31st December, 1944.

	<u>Tonnage</u>	
<u>Coal Sales</u> - Consumers	1,575	\$3.79
- Wholesalers	<u>14,768</u>	3.95
	<u>16,343</u>	<u>\$,64,320.29</u>
<u>Cost of Production</u>	<u>30,034</u>	
Stripping	\$2.301	\$ 69,094.55
Mining and Hauling	1.117	33,551.41
Tipple Operation	.563	16,899.85
Administration	.482	14,481.66
Royalties	.154	4,631.35
Interest on Advances	.160	4,812.15
Bank Interest	.087	2,613.97
Power	.036	1,082.32
Taxes	.033	981.03
Insurance	.029	877.08
Spur Rental	.025	738.03
Sundry	.026	779.99
Workmen's Compensation		
Board	.021	616.80
Lease Rentals	.008	252.20
Freight Overloads	<u>.008</u>	<u>238.33</u>
	\$5.050	\$151,650.72
<u>Less</u> Inventory of Coal		
in Bank	<u>.533</u>	<u>16,000.00</u>
	<u>\$4.517</u>	<u>\$135,650.72</u>
<u>Net Loss for Period</u>	<u>\$-2,375</u>	<u>\$- 71,330.43</u>

Cost per Ton -
1st October to 30th December, 1944.

Stripping	\$1.69
Removing, Parting and Waste	.32
Mining, Loading and Hauling	.95
Tippling	.35
Administration	.15
Royalties	.15
Other	<u>.05</u>
	<u>\$3.66</u>

Note:- The above Statement of Operations includes the charges from January to 30th September, when the mine was in the construction stage.

Mr. Morrison submits -

EXHIBIT 321 - Financial Statements 1930 - 1944,
Dodds Coal Mine, Dodds, Alberta.

(Supported by Exhibit "UU" for identification)

BALANCE SHEETS - 31st May, 1944 and 1945.ASSETS

	<u>1 9 4 4</u>	<u>1 9 4 5</u>
<u>Current</u>		
Cash on Hand and Bank Balances		\$ 886.38
Accts. Receivable	\$ 4,229.89	<u>4,754.76</u> \$ 5,641.14
<u>Deferred</u>	157.50	
<u>Fixed</u>		
Trucks		\$ 4,712.00
Mine Equipment	\$ 3,582.36	4,947.51
Ramp	602.13	602.13
Spur Track	5,405.00	6,574.30
Furniture and Cook-house equipment	674.32	908.70
Buildings	2,594.44	6,456.64
Land	<u>4,400.00</u>	<u>4,400.00</u>
	\$17,258.25	\$28,601.28
<u>Less Depreciation Reserve</u>	<u>1,276.09</u> 15,982.16	<u>4,280.18</u> 24,321.10
<u>Coal Leases</u>	<u>1,000.00</u>	<u>1,000.00</u>
	<u>\$21,369.55</u>	<u>\$30,962.24</u>

LIABILITIES

	<u>1 9 4 4</u>	<u>1 9 4 5</u>
<u>Current</u>		
Bank Overdraft and Loans	\$ 2,377.85	\$ 5,800.00
Accounts Payable	1,013.37	4,917.55
Proprietors' Loans	<u>2,400.00</u> \$ 5,791.20	<u>2,400.00</u> \$13,117.55
<u>Liability for Purchase of Mine</u>	4,911.61	
<u>Capital and Surplus</u>		
Proprietors' Capital	4,000.00	\$ 4,000.00
Proprietors' Undrawn Profits	<u>3,956.64</u> 7,956.64	<u>7,694.89</u> 11,694.89
<u>Reserve for Depletion</u>	<u>2,710.10</u>	<u>6,149.80</u>
	<u>\$21,369.55</u>	<u>\$30,962.24</u>

STATEMENT OF OPERATIONS FOR THE YEARS ENDED
31st May, 1944 and 1945.

		<u>1 9 4 4</u>	
	<u>Tons</u>	<u>Per Ton</u>	<u>Amount</u>
<u>Sales</u>	<u>27,101</u>	<u>\$2.13</u>	<u>\$ 57,636.81</u>
<u>Deduct</u>			
Operating Costs -			
Wages			\$ 17,916.66
Stripping			14,071.13
Loading			5,787.26
Hire of Horses & Tractors			341.17
Mine Supplies			1,683.54
Equipment Repairs			528.37
Pumping			203.61
Spur Track Maintenance			3,947.13
Freight and Hauling			481.86
Surveying			359.70
Lease Rental			89.89
Taxes			66.72
Workmen's Compensation Bd.			321.05
Unemployment Insurance			41.83
		\$1.69	\$45,839.92
Royalties		.05	1,289.70
Depletion		.10	2,710.10
Depreciation		.05	1,276.09
		<u>\$1.89</u>	<u>\$51,115.81</u>
Administration Expenses -			
Office Expenses, Interest, etc.		.095	2,564.36
<u>Total Expense</u>		<u>\$1.985</u>	<u>\$53,680.17</u>
<u>PROFIT FOR YEAR</u>		<u>\$.145</u>	<u>\$ 3,956.64</u>

		<u>1 9 4 5</u>	
	<u>Tons</u>	<u>Per Ton</u>	<u>Amount</u>
<u>Sales</u>	<u>34,397</u>	<u>\$2.09</u>	<u>\$71,894.55</u>
<u>Deduct</u>			
Operating Costs -			
Wages			\$19,344.34
Stripping			15,806.44
Loading			12,647.48
Hire of Horses & Tractors			-
Mine Supplies			1,892.24
Equipment Repaired			459.90
Spur Track Maintenance			2,180.61
Surveying			177.02
Lease Rental			290.00
Taxes			130.84
Workmen's Compensation Bd.			(1,274.42
Unemployment Insurance			(
Truck Expenses			1,555.68
		\$1.62	\$55,758.97
Royalties		.05	1,598.27
Depletion		.10	3,439.70
Depreciation		.09	3,004.09
		<u>\$1.86</u>	<u>\$63,801.03</u>
Administration Expenses -			
Office Exp., Interest, etc.		.12	4,332.27
<u>Total Expense</u>		<u>\$1.98</u>	<u>\$68,133.30</u>
<u>PROFIT FOR YEAR</u>		<u>\$.11</u>	<u>\$ 3,761.25</u>

MR. MORRISON submits

Exhibit 322 - Financial Statements, 1930-1944,
 Sheerness Coal Company Limited,
 Sheerness, Alberta
 (Supported by Exhibit "VV" for
 Identification)

SHEERNESS COAL COMPANY LIMITEDBALANCE SHEETS AS AT UNDERNOTED DATESA S S E T S

	<u>31st March, 1938</u>	<u>31st March, 1939</u>	<u>31st March, 1940</u>	<u>31st March, 1941</u>
Cash on Hand	\$ 900.51	756.51	528.98	1,416.18
Cash in Bank	135.21	3,435.48	39.10	187.97
Accounts Receivable	2,959.80	1,287.47	2,168.06	1,644.60
Stripping Inventory	1,050.00			913.60
Supplies Inventory	75.92	52.53	101.86	381.86
Advances to Leaval Coal Company	1,403.97	1,072.49		
Deferred Charges	257.40		700.18	393.27
Fixed Assets - Net			16,410.00	14,920.00
Mineral and Surface Rights - Net			26,510.40	25,405.51
	<u>\$6,782.81</u>	<u>6,604.48</u>	<u>46,458.58</u>	<u>45,262.99</u>
	<u>31st March, 1942</u>	<u>31st March, 1943</u>	<u>31st March, 1944</u>	<u>31st March, 1945</u>
Cash on Hand	\$ 69.58	241.30	822.40	2,787.19
Cash in Bank	4,317.12	807.43	1,097.66	2,624.25
Accounts Receivable	2,120.37	2,389.68	5,565.32	5,960.95
Stripping Inventory			2,400.00	2,000.00
Supplies Inventory				
Advances to Leaval Coal Company				
Deferred Charges		10.61	80.80	99.17
Fixed Assets - Net	14,743.31	14,326.74	13,670.69	12,583.09
Mineral and Surface Rights, Net	23,508.55	19,771.03	15,056.08	11,390.08
	<u>\$ 44,758.93</u>	<u>37,546.79</u>	<u>38,692.95</u>	<u>37,444.73</u>

L I A B I L I T I E S

	<u>31st March, 1938</u>	<u>31st March, 1939</u>	<u>31st March, 1940</u>	<u>31st March, 1941</u>
Accrued Payroll	\$ 329.65			
Accounts Payable	528.74	27.61	3,113.59	1,877.65
Accrued Liabilities			128.86	511.63
C. Gallinger, Share- holder Adv.	3,100.00	4,100.00	15,650.00	15,650.00
Capital Authorized				
100 Shares Common @ 100.00 - \$10,000.00				
Issued - 30 Shares	3,000.00	3,000.00	3,000.00	3,000.00
Capital Surplus			25,000.00	25,000.00
Revenue Surplus				
Deficit	-175.58	-523.13	-433.87	-776.29
	<u>\$ 6,782.81</u>	<u>6,604.48</u>	<u>46,458.58</u>	<u>45,262.99</u>

	<u>31st March, 1942</u>	<u>31st March, 1943</u>	<u>31st March, 1944</u>	<u>31st March, 1945</u>
Accrued Payroll		202.26	130.24	
Accounts Payable	2,545.44	108.59	1,390.16	680.69
Accrued Liabilities	244.23	328.97	244.52	394.31
C. Gallinger, Share- holder Adv.	13,737.65	3,860.00	3,000.00	500.00
Capital Authorized				
100 Shares Common @ \$100.00 - \$10,000.00				
Issued - 30 Shares	3,000.00	3,000.00	3,000.00	3,000.00
Capital Surplus	25,000.00	25,000.00	25,000.00	25,000.00
Revenue Surplus	231.61	5,046.97	5,928.03	7,869.73
Deficit				
	<u>\$ 44,758.93</u>	<u>37,546.79</u>	<u>38,692.95</u>	<u>37,444.73</u>

SHEERNESS COAL COMPANY LIMITED
REVENUE AND PROFIT AND LOSS STATEMENTS
FOR THE YEARS ENDED 31st MARCH, 1938 to 1945

	<u>1 9 3 8</u>		<u>1 9 3 9</u>	
<u>Net Tons Produced</u>	<u>9,221</u>		<u>8,178</u>	
	<u>Amount</u>	<u>Per Ton</u>	<u>Amount</u>	<u>Per Ton</u>
Labor	\$6,761.20	.710	3,359.35	.3933
Repairs and Supplies	1,811.61	.190	665.66	.0779
Power	1,008.08	.120	1,181.04	.1383
Insurance	81.28	.008	81.28	.0095
Taxes	16.10	.001		
Royalties	1,844.22	.190	1,723.14	.2018
Rents	277.40	.030		
Workmen's Compensation	233.95	.025	165.87	.0194
Administration	1,419.77	.150	2,516.03	.2946
Interest				
Miscellaneous	347.50	.036	52.12	.0061
Stripping			2,204.74	.2581
Selling Expense			768.15	.0899
Depreciation				
Depletion				
<u>Total Operating Costs</u>	<u>\$13,801.11</u>	<u>1.460</u>	<u>12,717.38</u>	<u>1.4889</u>
<u>Loss</u>	<u>175.58</u>	<u>.018</u>	<u>347.55</u>	<u>.0406</u>
<u>Profit, Before Income Tax</u>				
Total Credits -				
Sales & Miscellaneous				
Income	<u>\$13,625.53</u>	<u>1.442</u>	<u>12,369.83</u>	<u>1.4483</u>
<u>Net Profit or Loss</u>	<u>\$ -175.58</u>	<u>-.018</u>	<u>-347.55</u>	<u>-.0406</u>
Total Number of				
Shifts Worked	<u>2,015</u>		<u>2,049</u>	

REVENUE AND PROFIT AND LOSS STATEMENTS (Continued)

	1 9 4 0		1 9 4 1	
<u>Net Tons Produced</u>	<u>12,896</u>		<u>11,049</u>	
	<u>Amount</u>	<u>Per Ton</u>	<u>Amount</u>	<u>Per Ton</u>
Labor	\$4,350.77	.3345	5,011.51	.4536
Repairs & Supplies	1,032.01	.0793	805.37	.0729
Power	123.50	.0095		
Insurance	69.76	.0054	160.38	.0145
Taxes			300.00	.0272
Royalties	2,546.15	.1958	552.46	.0500
Rents			511.81	.0463
Workmen's Compensation	128.23	.0099	155.05	.0140
Administration	1,835.31	.1411	1,613.00	.1460
Interest	9.51	.0007	12.82	.0012
Miscellaneous	145.96	.0112	1,113.86	.1008
Stripping	3,590.37	.2760	2,720.55	.2462
Selling Expense	1,604.33	.1234	1,992.98	.1803
Depreciation	1,490.00	.1146	1,490.00	.1348
Depletion	1,289.60	.0992	1,104.89	.1000
<u>Total Operating Costs</u>	<u>\$18,215.50</u>	<u>1.4006</u>	<u>17,544.68</u>	<u>1.5878</u>
<u>Loss</u>			<u>325.70</u>	<u>.0294</u>
<u>Profit, before Income Tax</u>	<u>89.26</u>	<u>.0069</u>		
Total Credits - Sales & Miscellaneous Income	<u>\$18,304.76</u>	<u>1.4075</u>	<u>17,218.98</u>	<u>1.5584</u>
<u>Net Profit or Loss</u>	<u>\$ 89.26</u>	<u>.0069</u>	<u>-325.70</u>	<u>-.0294</u>
<u>Total Number of Shifts Worked</u>	<u>2,104</u>		<u>1,603</u>	

SHEERNESS COAL COMPANY LIMITED
REVENUE AND PROFIT AND LOSS STATEMENTS (Continued)

	<u>1 9 4 2</u>		<u>1 9 4 3</u>	
<u>Net Tons Produced</u>	<u>18,969</u>		<u>37,375</u>	
	<u>Amount</u>	<u>Per Ton</u>	<u>Amount</u>	<u>Per Ton</u>
Labor	\$ 8,017.60	.4224	11,642.46	.3115
Repairs & Supplies	2,463.13	.1298	10,413.91	.2778
Power				
Insurance	407.56	.0215	384.43	.0102
Taxes	828.97	.0436	315.00	.0084
Royalties	948.46	.0500	1,868.76	.0500
Rents	511.81	.0269	983.62	.0263
Workmen's Compensation	284.41	.0150	306.21	.0081
Administration	3,061.27	.1613	6,771.90	.1811
Interest	920.93	.0485	897.32	.0215
Miscellaneous				
Stripping	4,164.85	.2195	10,453.09	.2796
Selling Expense	5,497.21	.2896	5,537.75	.1508
Depreciation	1,635.90	.0862	2,042.35	.0546
Depletion	1,896.96	.1000	3,747.52	.0999
<u>Total Operating Costs</u>	<u>\$30,639.06</u>	<u>1.6143</u>	<u>55,364.32</u>	<u>1.4798</u>
<u>Profit, before Income Tax</u>	<u>\$ 1,007.90</u>	<u>.0538</u>	<u>5,060.36</u>	<u>.1350</u>
<u>Total Credits - Sales and Miscellan- eous Income</u>	<u>\$31,646.96</u>	<u>1.6681</u>	<u>60,424.68</u>	<u>1.6148</u>
<u>Net Profit</u>	<u>\$ 1,007.90</u>	<u>.0538</u>	<u>5,060.36</u>	<u>1.6148</u>
<u>Total Number of Shifts Worked</u>	<u>2,330</u>		<u>2,523</u>	

SHEERNESS COAL COMPANY LIMITEDREVENUE AND PROFIT AND LOSS STATEMENTS (Continued)

	<u>1 9 4 4</u>		<u>1 9 4 5</u>	
<u>Net Tons Produced</u>	<u>47,149</u>		<u>36,209</u>	
	<u>Amount</u>	<u>Per Ton</u>	<u>Amount</u>	<u>Per Ton</u>
Labor	\$14,970.85	.3175	14,863.63	.4104
Repairs & Supplies	13,822.85	.2931	12,999.53	.3590
Power				
Insurance	529.27	.0112	587.67	.0162
Taxes	315.00	.0066	277.82	.0076
Royalties	2,357.40	.0500	1,807.96	.0500
Rents	521.81	.0110	512.59	.0141
Workmen's Compensation	534.71	.0113	814.28	.0224
Administration	4,860.37	.1030	3,955.15	.1092
Interest	470.49	.0099		
Miscellaneous	2,469.30	.0523	2,736.78	.0755
Stripping	20,871.97	.4426	14,428.00	.3984
Selling Expense	4,431.96	.0941	2,234.25	.0617
Depreciation	2,356.05	.0500	2,116.64	.0584
Depletion	4,714.95	.1000	3,666.00	.1017
<u>Total Operating Costs</u>	<u>\$73,226.98</u>	<u>1.5526</u>	<u>61,000.30</u>	<u>1.6846</u>
<u>Profit, before</u>				
<u>Income Tax</u>	<u>\$ 4,840.24</u>	<u>.1020</u>	<u>1,941.70</u>	<u>.0536</u>
<u>Total Credits -</u>				
<u>Sales & Miscellaneous Income</u>	<u>\$78,067.22</u>	<u>1.6546</u>	<u>62,942.00</u>	<u>1.7382</u>
<u>Net Profit</u>	<u>\$ 4,840.24</u>	<u>.1020</u>	<u>1,941.70</u>	<u>.0536</u>
<u>Total Number of Shifts Worked</u>	<u>3,224</u>		<u>2,664</u>	

MR. MORRISON submits

Exhibit 323 - Financial Statements, 1930-1944,
Tofield Coal Company Limited,
Tofield, Alberta
(supported by Financial State-
ments Exhibit "WW" for Identi-
fication)

TOFIELD COAL COMPANY LIMITEDBALANCE SHEETS AS AT 31st MARCH, 1944 and 1945A S S E T S

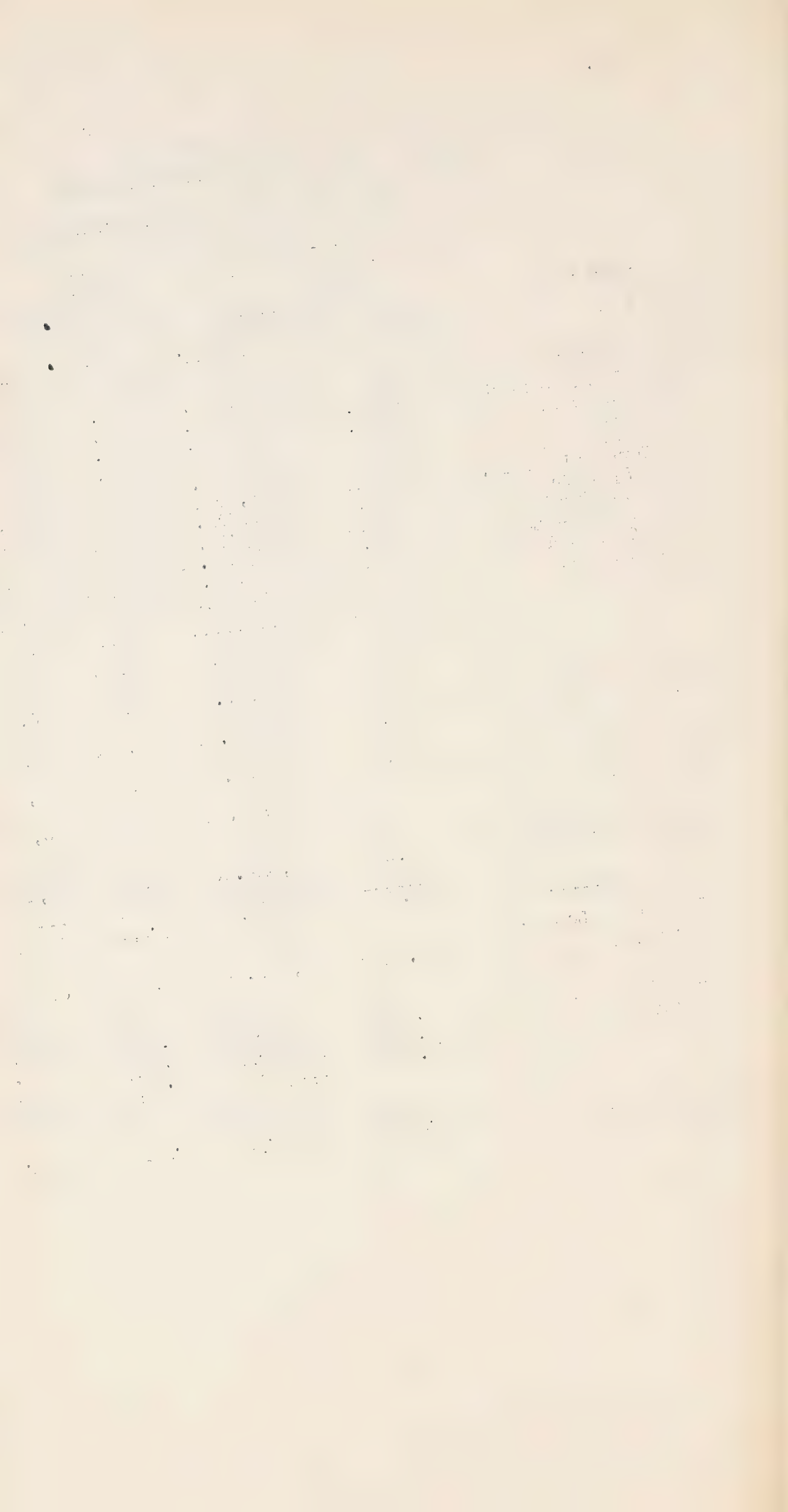
	<u>1 9 4 4</u>	<u>1 9 4 5</u>
<u>Plant, Buildings & Machinery</u>	\$ 26,470.72	23,719.85
<u>Mineral and Surface Rights</u>	28,991.95	37,060.45
<u>Current</u>		
Cash	22,934.62	33,628.27
Accounts Receivable	8,847.11	9,083.45
Inventories - Stripping	16,000.00	9,500.00
Farm	18,806.28	15,368.47
Other	2,116.02	2,148.38
	<u>\$ 68,704.03</u>	<u>69,728.57</u>
<u>Investments and Advances</u>		
<u>Mortgages</u>		
	<u>\$ 124,166.70</u>	<u>130,508.87</u>

L I A B I L I T I E S

<u>Capital</u>	\$ 100,000.00	100,000.00
<u>Capital Surplus</u>	4,812.24	4,812.24
<u>Revenue Surplus</u>	11,806.53	17,755.26
<u>Current Liabilities</u>	965.06	1,401.17
<u>Commodity Prices Stabilization Corporation</u>	4,070.87	4,070.87
<u>Shareholders</u>	2,512.00	2,469.33
	<u>\$ 124,166.70</u>	<u>130,508.87</u>

TOFIELD COAL COMPANY LIMITEDSTATEMENT OF OPERATIONS - 1944 and 1945

	<u>1 9 4 4</u>		<u>1 9 4 5</u>	
	<u>Per Ton</u>	<u>Amount</u>	<u>Per Ton</u>	<u>Amount</u>
<u>Production</u>		<u>57,896</u>		<u>58,315</u>
<u>Sales</u>	<u>\$1.860</u>	<u>107,702.21</u>	<u>1.935</u>	<u>112,824.94</u>
<u>Mining Costs</u>				
Wages	.414	23,951.14	.518	30,209.96
Unemployment Insurance	.007	403.57	.006	379.01
Draining	.054	3,141.47	.063	3,683.92
Gas and Oil	.007	417.18	.007	421.54
Supplies	.002	87.30	.001	39.62
Workmen's Comp. Board	.028	1,595.36	.027	1,583.77
Spur Track	.065	3,791.47	.056	3,241.94
Checkweighman	.029	1,700.00	.024	1,400.00
Wages - Loading	.050	2,914.68	.027	1,606.80
Overhead	.133	7,719.21	.149	8,672.98
Stripping	.536	31,045.03	.545	31,755.82
	<u>\$ 1.325</u>	<u>76,766.41</u>	<u>1.423</u>	<u>82,995.36</u>
General Expenses	.133	7,717.38	.119	6,929.54
Selling Expenses	.068	3,922.57	.060	3,495.49
Depreciation	.078	4,494.19	.080	4,687.85
Depletion	.100	5,789.60	.100	5,831.50
Manager's Salary ($\frac{1}{4}$ of Profits)	.043	2,512.00	.042	2,469.33
<u>Total Expenses</u>	<u>\$ 1.747</u>	<u>101,202.15</u>	<u>1.824</u>	<u>106,409.07</u>
<u>Profit or Loss - Mining</u>	<u>\$.113</u>	<u>6,500.06</u>	<u>.110</u>	<u>6,415.87</u>
Rentals	.013	737.00	.012	678.50
Sundry	.005	298.97	.005	313.63
	<u>\$.018</u>	<u>1,035.97</u>	<u>.017</u>	<u>992.13</u>
<u>Net Profit</u>	<u>\$.131</u>	<u>7,536.03</u>	<u>.127</u>	<u>7,408.00</u>



MR. MORRISON submits

Exhibit 324 - Financial Statements, 1930-1944,
 Western Ventures Limited, Taber,
 Alberta
 (supported by Financial Statements
Exhibit "XX" for Identification)

WESTERN VENTURES LIMITEDBALANCE SHEET AS AT 31st MARCH, 1945ASSETSCurrent Assets

Cash on Hand and in Banks		\$ 6,441.62
Accounts Receivable		<u>772.75</u>

Total Current Assets		\$ 7,214.37
----------------------	--	-------------

Prepaid Expenses

Unexpired Insurance	\$748.30	
Spur Rentals	368.63	
Lease Rentals	292.02	
Workmen's Compensation	127.43	
Miscellaneous	<u>151.47</u>	1,687.85

Development

Stripping	\$80,536.66	
Less Charged to Operations	<u>66,504.94</u>	13,831.72

Capital Assets

Less Reserve for Depreciation	\$82,039.26	
	<u>8,324.13</u>	73,715.13

Deficit Account

as at 31st March, 1944	\$16,811.55	
Add Loss to 31st March, 1945	<u>62,433.22</u>	79,244.77
		<u>\$ 175,693.84</u>

LIABILITIESCurrent Liabilities

Accounts Payable		\$ 2,954.90
Total Current Liabilities		<u>\$ 2,954.90</u>

Due to Emergency Coal Production Board

Operating Loan	\$160,406.75	
Budget Advances	<u>4,264.19</u>	164,670.94

Reserve for Depletion

	5,568.00
--	----------

Capital StockAuthorized -

100 Shares of \$100.00 each	<u>\$ 10,000.00</u>
-----------------------------	---------------------

Issued and Fully Paid -

25 Shares of \$100.00 each	2,500.00
----------------------------	----------

Contingent Liabilities

none reported	
---------------	--

	<u>175,693.84</u>
--	-------------------

WESTERN VENTURES LIMITEDSTATEMENT OF OPERATIONSFOR THE YEAR ENDED 31st MARCH, 1945

<u>Particulars</u>	<u>Total Cost</u>	<u>Per Ton Cost</u>
Stripping - Contract	\$ 57,599.34	2.4032
- Rental of Machinery	4,855.46	.2025
<u>Cost of Stripping - Administration Omitted</u>	<u>\$62,454.80</u>	<u>2.6057</u>
Digging and Trucking	30,743.06	1.2826
Tipple Payroll	10,876.48	.4538
Administration - Salaries	9,342.17	.3898
Workmen's Compensation Board	1,085.46	.0453
Commissions	6,002.72	.2504
Freight Equalizations	1,376.72	.0574
Royalties	2,396.80	.1000
Interest and Exchange	5,447.02	.2272
Power	962.80	.0403
Insurance	866.80	.0362
Legal and Audit	774.79	.0324
Automobile Expense	597.68	.0249
Spur Rental	554.37	.0232
Lease Rentals and Expense	918.26	.0383
Telephones and Telegrams	473.11	.0198
Hauling and Dumping Slack	417.30	.0174
Travelling	329.85	.0138
Repairs	326.83	.0137
Taxes	310.57	.0128
Stationery and Office Expense	481.56	.0200
Miscellaneous Expenses	809.78	.0338
	<u>\$ 75,094.13</u>	<u>\$3.1331</u>
Depletion	4,793.60	.2000
Depreciation	7,362.44	.3072
<u>Cost of Administration, Processing and Sales</u>	<u>\$ 87,250.17</u>	<u>\$3.6403</u>
Total Operating Cost	\$149,704.97	\$6.2460
<u>Less Sales - 23,968 Tons</u>	<u>87,998.61</u>	<u>3.6716</u>
Operating Loss	\$ 61,706.36	\$2.5744
<u>Less Sundry Income</u>	<u>316.50</u>	<u>.0132</u>
	<u>\$ 61,389.86</u>	<u>\$2.5612</u>
<u>Add Sales Allowances</u>	<u>1,043.36</u>	<u>.0435</u>
<u>Net Loss For Year</u>	<u>\$ 62,433.22</u>	<u>\$2.6047</u>

Mr. Morrison submits -

EXHIBIT 325 - Financial Statements 1930 - 1944,
Canadian Collieries (Dunsmuir)
Limited and Subsidiaries,
Nanaimo, B. C.

(Supported by Exhibit "YY" for identification).

In 1910, Canadian Collieries was incorporated and acquired the holdings of the Wellington Securities in consideration of the issue of the following securities:

	<u>Consideration</u>
<u>Common Shares</u> - \$10,000.000-	Assignment to Company of Agreement for Sale with Wellington Securities.
<u>Preferred Shares</u> - \$ 5,000,000- Cash	
7% Cumulative	
5% First Mortgage	
<u>Gold Bonds</u> - \$10,000,026.67 -	\$9,500,000 - Cash - @ \$95.

In 1914, an issue of £50,000 (\$243,333.33) - 6% - 3 year notes realized \$200,000.

The Vancouver Island Coals Ltd., (formerly Wellington-Comox Agency Ltd.) in 1914, issued and sold at par £150,000 (\$729,990) 7% Income bonds. Under a scheme of compromise with the bondholders in the year 1920, the holders of these 7% income bonds received \$445,800 in 6% serial bonds which were subsequently redeemed by instalments and finally paid off in 1924. For the unpaid interest amounting to \$255,471.35 on the 7% income bonds, the holders received 10,000 Common Shares of R. Dunsmuir Sons Co. (of California) valued at \$539,661.35.

The ordinary shares of Vancouver Island Coals (\$500,000.00) were issued to Canadian Collieries in respect of the sales contract, and in the Consolidated Balance Sheet of the various Companies is shown at the nominal value of \$1.00.

As at 30th June, 1920, a re-organization of the various Companies was effected, and the following adjustments were made:--

Common Shares - \$10,000,000.

Reduced by 99% or \$9,900,000 to \$100,000.00.

Preferred Shares - 7% - \$5,000,000.

70% of these shares, amounting to \$3,500,000, were cancelled, leaving preferred shares outstanding to the extent of \$1,500,000.

First Mortgage - 5% Bonds - \$10,000,026.67

A payment of \$987,154.67 was made in respect of these bonds and new 5% bonds in the amount of \$9,012,872.00, consisting equally of "A" and "B" Debentures were issued.

For the accrued unpaid interest on the 1910 bond issue, the following securities were issued:

Common Shares - 925,980 of \$1.00 each - \$925,980.00

Preferred Shares - 185,196 of \$10.00 each -
\$1,851,960.00

6% - 3 year Notes - \$243,333.33

At 30th June, 1920, the amount outstanding in respect of these notes amounting to \$272,141.81, was compromised and 25,000 Preference Shares of \$10.00 each, or a total of \$250,000, were issued.

In 1928 Canadian Collieries purchased the Common Shares of Western Fuel Corporation of Canada Limited, being 3,000,000 shares of \$1.00 each for a cash consideration of \$1,725,000.00.

Western Fuel Corporation has, at the date of the acquisition of its common shares by Canadian Collieries, outstanding 8% Sinking Fund bonds amounting to \$2,000,000.00. These bonds were redeemed in 1928 by the issue of 7% Sinking Fund bonds in the amount of \$2,000,000.00, and these bonds were finally redeemed by instalments which ended 30th June, 1939.

Also in the year 1928, Wellex Securities was incorporated, the main function of this Company being to purchase the Income debentures of Canadian Collieries with funds acquired from the parent Company. Up to 1944, Wellex has purchased \$2,427,031.00

of these income debentures at a cost of \$369,435.00, resulting in a capital profit of \$2,057,596.00.

As at 30th June, 1944, the following securities were held by the public:

Common Shares (Par Value \$1.00)	\$1,025,980
Preferred Shares (\$10.00 each)	3,601,960
"A" Debentures	319,292
"B" Debentures	<u>2,169,818</u>
	<u>\$ 7,117,050</u>

In 1941, McLeod River Hard Coal Company (1941) Ltd. was incorporated with an ordinary Share Capital of \$50,000.00, which shares were all issued to Wellex Securities for a consideration of the leasehold properties.

Debentures in the amount of \$400,000.00 were also issued by the Company, and are also held by Wellex Securities Limited. The proceeds of these debentures appear to have been invested in Plant and Equipment.

As at 30th June, 1944, the Consolidated Balance Sheet of Canadian Collieries and its subsidiaries is summarized in the undernoted table:

<u>Assets</u>	
Properties including coal lands	\$ 12,924,372
<u>Less Depreciation and Depletion Reserve</u>	<u>7,332,229</u>
<u>Net Property Value</u>	<u>\$ 5,592,143</u>
Deferred Charges, etc.	132,947
Current assets	2,163,056
<u>Less Current liabilities</u>	<u>516,335</u>
<u>Net Current Position</u>	<u>1,646,721</u>
	<u>\$ 7,371,811</u>
 <u>Liabilities</u>	
<u>Share Capital</u>	\$ 4,627,940
<u>Funded Debt</u>	2,489,110
<u>Reserves</u>	169,807
<u>Surplus</u>	<u>84,954</u>
	<u>\$ 7,371,811</u>

It will be observed that the Company has an excess of \$1,646,721 of current assets over its current liabilities.

During the 15 year period over \$1,100,000 has been expended on Plant and Equipment.

OPERATING RESULTS (Consolidated)

	Profit or Loss Before Inc. Tax & Deb. Interest	Income Tax	Debenture Interest	Net Profit or Loss
1930	\$ 175,943.87	\$ - 9,573.59	\$ 78,602.27	\$ 106,915.19
1931	- 32,636.21	518.40	60,073.05	- 93,227.66
1932	50,372.77	28.12	60,843.47	- 10,498.82
1933	- 31,061.66	-	40,562.31	- 71,623.97
1934	- 2,383.62	11,310.87	40,238.52	- 53,933.01
1935	86,917.44	3,669.73	36,567.86	46,679.85
1936	49,495.17	-	35,889.40	13,605.77
1937	48,281.96	-	26,104.21	22,177.75
1938	44,774.56	-	20,954.10	23,820.46
1939	32,396.85	-	20,336.93	12,059.92
1940	42,994.75	9,788.91	16,200.27	17,005.57
1941	31,960.59	-	15,898.04	16,062.55
1942	250,807.10	35,072.71	15,674.18	200,060.21
1943	155,138.61	-	72,528.65	82,609.96
1944	<u>45,384.09</u>	<u>-</u>	<u>55,985.39</u>	<u>- 10,601.30</u>
	<u>\$ 948,386.27</u>	<u>\$ 50,815.15</u>	<u>\$ 596,458.65</u>	<u>\$301,112.47</u>

The above profit for the years indicated includes the following amounts of Government assistance:

1942	\$ 21,028.29
1943	101,681.73
1944	<u>246,732.64</u>
	<u>\$ 369,442.66</u>

Of the above amount the sum of \$156,933.53 was received in respect of subsidies from the Coal Emergency Production Board.

Total depletion as allowed by the Income Tax Department is not taken up in the books of the Company, but in making the returns to the Department is taken into account. This accounts, in the main, for the difference between the taxable income and the profit as shown by the Company's records.

Depletion at the undernoted rates per ton has been set up in the Company's books and charged to operations:

1930	\$.0540
1933	.0469
1934	.0430
1936	.0622
1938	.0429
1944	.1227

The allowance by the Income Tax Department is 10¢ per ton.

The tabulation following summarizes the results per ton before income tax and income debenture interest.

Sales	Sundry Revenue	Invest- ment Income	Mining & Operating Cost	Depn. & Depletion	Other Chgs. Including Western Fuel Bond Int.	Net Profit or Loss Before Tax & Income Deb. Int.
\$5.1871	\$.1674	\$.0488	\$ 4.5038	\$.5024	\$.2004	\$.1968
4.9767	.1610	.0584	4.7505	.2551	.2335	- .0430
4.9180	.1385	.0746	4.5232	.2949	.2416	.0714
4.9350	.1388	.0815	4.5334	.4668	.2032	- .0481
4.7781	.1457	.0947	4.3891	.4626	.1707	- .0039
4.7922	.1308	.0735	4.3935	.3827	.0839	.1364
4.8691	.1340	.0855	4.5745	.3802	.0593	.0746
4.8414	.1293	.0685	4.7340	.1847	.0534	.0671
4.8045	.1438	.0593	4.6660	.2273	.0532	.0611
5.0032	.2118	.0778	4.9626	.2044	.0714	.0542
5.0715	.1556	.0754	4.9200	.2692	.0465	.0668
5.0608	.2194	.0702	4.9161	.2988	.0810	.0545
5.3535	.2306	.0735	4.8459	.3984(x)	.0808	.3325
5.6841	.3307	.0965	5.6640	.5434(x)	.0478	- .1439
6.1883	.1938	.0586	6.0498	.4621(x)	.2318	- .3030

(x) - Includes results of McLeod River Company.

For the years 1942, 1943 and 1944 Government assistance varied the results shown above to:

1942 \$.3629

1943 .0169

1944 .0683

The variation in the provision for depreciation and depletion will be noted from the above from a low of .1847 to a high of .5434 per ton. The provision, to a large extent, is governed by the final operating result.

Profits or losses by Companies and depreciation and depletion on consolidated basis is as follows:-

	Canadian Collieries	Western Fuel	Vancouver Isl. Coal	Wellex Securities	McLeod River Coal	Amounts Depreciation	Depletion
1930	\$ 9,900.64	169,076.00	2,500.	4,040.82		400,742.71	\$48,263.
1931	103,746.90	-140,328.87		3,427.36		193,471.18	-
1932	77,816.00	-28,430.73		959.38		208,250.99	-
1933	77,958.12	-108,627.91		-391.87		271,278.52	30,184.
1934	80,895.55	-94,450.18		-139.86		255,362.60	26,175.
1935	232,749.43	-148,998.80		-502.92		243,894.36	-
1936	160,246.48	-110,638.09		-113.22		211,035.46	41,241.
1937	185,153.14	-136,752.88		-118.30		132,819.80	-
1938	105,297.35	-58,316.49		-2,206.30		135,122.41	31,355.
1939	105,752.50	-72,422.28		-933.37		122,147.55	-
1940	34,563.59	-		-1,357.75		173,151.57	-
1941	32,975.70	-		-1,015.11		175,295.47	-
1942	238,077.72	-		-1,031.83	-21,311.50	275,284.40	
1943	151,058.41	-		-104.12	4,184.32	343,585.42	-
1944	69,892.40	-		-12.58	-24,495.73	225,490.98	81,514.
	\$1,666,083.93		2,500.00	500.33		2266,933.42	258,735.
		-729,890.23			-41,622.91		

SALES

A detailed analysis of sales is set out in the statements for this Company. A summary of the disposition of the coal is shown hereunder:

	<u>Railways</u>	<u>Bunkers</u>	<u>Dealers</u>	<u>Commercial Etc.</u>	<u>Employees Local and Company</u>	<u>Total</u>
1930	191,592	85,356	258,065	261,951	103,936	900,900
1931	158,894	56,002	215,212	227,296	97,987	755,481
1932	135,164	42,693	234,354	165,601	91,416	669,228
1933	119,180	40,253	228,758	200,215	89,065	677,471
1934	102,908	48,255	181,697	201,915	76,103	610,878
1935	103,429	45,743	202,333	200,703	82,987	635,195
1936	108,534	71,839	205,377	187,268	90,918	663,936
1937	111,577	129,519	205,970	212,222	95,664	754,952
1938	116,811	120,445	188,577	215,836	77,618	719,287
1939	107,398	138,662	166,699	222,290	55,491	690,540
1940	93,507	172,596	179,409	274,541	33,692	753,745
1941	86,111	110,127	183,905	226,878	25,370	632,391
1942	128,338	93,346	227,723	284,714	24,202	758,323
1943	16,344	102,127	265,093	238,715	27,736	650,015
1944	13,322	80,523	288,431	276,598	27,428	686,302

The above tabulation includes outside and development tonnage.

Using representative years and dealing with outside sales, price variations are as follows:

	<u>High</u>	<u>Commox</u>	<u>Low</u>	<u>High</u>	<u>Wellington</u>	<u>Low</u>
1930	\$ 6.30		\$ 4.11	\$ 6.18		\$ 4.01
1935	6.07		4.11	6.12		3.94
1939	5.87		4.03	6.33		3.94
1944	8.25		4.50	9.07		4.48

In reviewing the above comparisons, regard must be had to the fact that all grades of coal are included and all points of destination.

The McLeod River Company show an average selling price of \$3.60 in 1942; \$3.70 in 1943 and \$4.09 in 1944.

MINING COSTS

Comparative costs for all collieries are shown in the undernoted table::

	<u>Mining and Loading</u>	<u>Inside Labor & Material</u>	<u>Devel- op- ment</u>	<u>Outside Labor & Material</u>	<u>Power, W.C.B. etc.</u>	<u>Total Mining Cost</u>
1930	\$ 1.1822	1.4921		.4598	.5267	3.6608
1931	1.2042	1.4190	.0534	.4520	.5878	3.7164
1932	1.1223	1.3338		.4421	.5306	3.4288
1933	1.0804	1.3625		.4689	.5102	3.4220
1934	.9784	1.2791		.4851	.4734	3.2160
1935	1.0321	1.2806		.4620	.4956	3.2703
1936	1.0689	1.4585		.4807	.5254	3.5335
1937	1.1001	1.5166		.5311	.5452	3.6930
1938	1.1294	1.4173		.4922	.4783	3.5172
1939	1.1741	1.4498		.4724	.4756	3.5719
1940	1.3351	1.5631		.4570	.3841	3.7393
1941	1.2406	1.5537		.4702	.3659	3.6304
1942	1.1874	1.4778		.4285	.3481	3.4418
1943	1.2439	1.6934		.5331	.5158	3.9862
1944	1.3683	1.9081		.5531	.5441	4.3736

McLeod River

1942	1.2860	.8225		.8125	.4557	3.3760
1943	1.2868	.8681		.6601	.4981	3.3129
1944	1.3646	.9401		.8977	.7201	3.9230

A statement of costs by mines is also shown which shows the following variation in costs:

	<u>High</u>	<u>Low</u>	<u>Average</u>
1930	\$ 4.7054	2.7219	3.6609
1931	3.9717	2.5249	3.7164
1932	3.6994	2.3549	3.4288
1933	3.9068	2.5691	3.4220
1934	3.4914	2.7967	3.2160
1935	4.0808	2.4443	3.2703
1936	3.7967	3.1439	3.5335
1937	4.3566	3.1352	3.6931
1938	3.8357	3.0824	3.5172
1939	3.7592	3.3414	3.5719
1940	4.2362	3.0744	3.7392
1941	4.3193	3.1184	3.6304
1942	4.2786	2.8079	3.4419
1943	5.4228	3.5637	3.9869
1944	5.5053	3.8887	4.3742

All of the above costs are before depreciation and depletion.

<u>Output per Shift</u>	<u>Mining</u>	<u>All Labor</u>
1936	2.2526 Tons	1.7096 Tons
1937	2.2835	1.7214
1938	2.3854	1.8002
1939	2.3699	1.6735
1940	2.2918	1.7459
1941	2.4716	1.8827
1942	2.9388	2.2924
1943	2.9460	2.1845
1944	3.0020	2.2406

PRODUCTION TONNAGE

<u>Year</u>	<u>Tonnage</u>
1930	969,173
1931	831,345
1932	775,834
1933	691,100
1934	548,549
1935	694,012
1936	734,075
1937	845,381
1938	868,639
1939	729,255
1940	832,400
1941	738,035
1942	865,414
1943	781,250
1944	815,147
<hr/>	
11,819,609	
<hr/>	

RECAPITULATION

Using representative years 1930, 1935, 1939 and 1944,
the undernoted are comparative figures of certain aspects of
the operations of the Company:

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Net Valuation of properties	\$4,140,160	2,606,363	2,010,122	1,409,475
Net Valuation of Plant & Equipment	5,727,990	4,598,734	4,632,553	4,162,667
Total Current Assets	1,922,974	2,093,620	1,617,686	2,163,056
" " Liabilities	<u>249,874</u>	<u>116,451</u>	<u>270,510</u>	<u>516,335</u>
Net Current Position	<u>1,673,100</u>	<u>1,977,169</u>	<u>1,347,176</u>	<u>1,646,721</u>
Funded Debt	6,785,608	4,398,676	3,195,497	2,489,110
Capital Stock	4,627,940	4,627,940	4,627,940	4,627,940
Surplus	365,344	161,595	37,267	84,954
Reserves	-	42,466	169,807	169,807
Tonnage Produced	969,173	694,012	729,255	815,147
Tons per man - output	-	<u>1936</u> <u>1.70</u>	1.67	2.24
Average selling price- per ton	\$ 5.1871	<u>1935</u> 4.7922	5.0032	6.1833
Total Mining & Operat- ing Costs, including depreciation, depletion and Bond Interest - per ton	\$ 5.2066	4.8601	5.238	6.7437

MR. MORRISON submits

Exhibit 326 - Financial Statements, 1930-1944,
Tulameen Collieries Limited,
Tulameen, B.C. - Corporate
History and Summary of Operating
Experience
(supported by Financial Statements
Exhibit "ZZ" for Identification)

Tulameen Collieries Limited - Vancouver, B.C.

Tulameen opened a mine in 1942 at Princeton, B.C. The Company was formed with a share capital of \$100,000 and has net properties in 1944 valued at \$105,655, of which \$89,185 is deemed to be goodwill. As at the same date the current position shows a debit of \$3,740.

The result of the Company's operation is tabulated below:

	Profit or Loss Before Subsidy & Income Tax	Subsidy	Income Tax	Net Profit or Loss
1942	\$ -3,631.89	\$	\$	\$ -3,631.89
1943	-12,676.80	8,827.17		-3,849.63
1944	2,875.54	5,946.49	5,322.03	3,500.00

The auditor's report for 1944 contains the following clause:

"During the early part of the year the mine operated at a loss and was awarded subsidy by the Emergency Coal Board. When miners became available the output of the mine was increased, resulting in a profit.

"The mine is now operating three eight-hour shifts, and I have been informed by your Managing Director that at this rate the present mine may be depleted within a year."

A summary of the operations per ton is as follows:

	<u>1942</u>	<u>1943</u>	<u>1944</u>
Sales and Sundry Revenues	\$ 3.8678	4.2630	4.4960
Mining Costs - Labor, Material, etc.	\$ 2.9817	4.1725	3.8310
Depreciation, Depletion & Development	.2845	.3044	.1399
General Charges	.9824	.7202	.4445
	<u>\$ 4.2486</u>	<u>5.1971</u>	<u>4.4154</u>
Operating Profit or Loss	\$ -.3808	-.9341	.0806
Subsidy		.6504	.1666
Profit or Loss after subsidy	\$ -.3808	-.2837	.2472
Income Tax			.1491
Net Profit or Loss	<u>\$ -.3808</u>	<u>-.2837</u>	<u>.0981</u>

The Company has produced the undernoted tonnage:

1942	9,538 tons
1943	13,571 "
1944	35,700 "

Production per man-day was 1.86 tons in 1942, 2.8 tons in 1943, and 3.1 tons in 1944.

MR. MORRISON: Now these are all the Exhibits I have, Mr. Chairman.

DR. L. E. YOUNG takes the Stand - EXAMINED BY MR. FRAWLEY

Q. You are still under oath Dr. Young. You have a report to present to the Commission with respect to the New Brunswick operation?

A. Yes, I have.

Q. Is this the report which I have?

A. Yes.

EXHIBIT 327 - Report of Dr. L. E. Young on
the New Brunswick coal fields.

Dr. Young then submitted his report, as follows:-

SUMMARY OF FINDINGS

1. The quality of the run-of-mine coal mined in this field is such that it cannot be shipped any considerable distance in competition with coal from Nova Scotia and the United States.

2. The productive coal seam is only 18 to 30 inches thick and lies at shallow depth.

3. At the present rate of production it is probable that the coal reserves will be adequate for many years, particularly if large scale stripping operations are developed.

4. Due to the fact that the coal seam is not continuous, it is necessary to do a large amount of drilling to determine the outlines of the coal basins. Underground exploration can be preceded by drilling as the holes are usually shallow. Additional drilling will be necessary, as suggested by the Department of Lands and Mines, in order

(1) to delineate the boundaries, structure, and nature of the coal in unexplored areas,

(2) to provide additional information regarding minor structures,

(3) to outline strippable areas,

(4) to plan for a drainage system for the coal areas, and

(5) to provide information for a long-term plan in the field.

5. The mining conditions are difficult considering the height of seam, character of roof, difficulty of roof support, large volume of water, etc. In general, the mine equipment has been planned for small scale operations, with small mine cars, small hoists, and small tipples.

The output per man day is low with high production costs.

6. The coal seam contains a large amount of pyrites and generally there are several dirt bands or partings which must be cut out or mined with the coal. The run-of-mine coal contains considerable inherent ash which is difficult to remove by washing.

It has been proposed that a custom cleaning plant be installed at the Power Commission Plant and that the highest quality coal be shipped to the market while the middlings and any sizes not currently saleable would be sold to the plant.

7. Due to the manner in which leases have been granted, the coal field is divided into a large number of small holdings with the result that it is sometimes difficult to consolidate sufficient acreage to justify the opening of an efficient mine.

(Sgd) L. E. Young.

NEW BRUNSWICK

This Province has been a producer of coal on a small scale since the seventeenth century. The total production in 1944 was 334,530 tons, the largest production in any one year having been 432,449 tons in 1941. The total number of men employed in the fifteen mines is about 1000.

The most important seam is at shallow depths and varies in thickness from 16 to 30 inches. The coal is classified as Class II, Bituminous, Group III, High Volatile A.

Stripping has become much more important in recent years; in 1935 only 4.6 per cent of the tonnage produced came

from strip pits, and in 1944 this had increased to 27.3 per cent.

The average fixed investment in the underground mines in 1942 was \$1.95 per ton of capacity, as compared with \$4.42 for Nova Scotia, \$2.09 for Saskatchewan, \$3.73 for Alberta, and \$9.24 for British Columbia.

The geology of the Grand Lake Coal Field has been reviewed by Wright and Clements in a recent paper before the Canadian Institute of Mining and Metallurgy.[#] The coal occurs in one or more seams in the Grand Lake formation which is the youngest formation of consolidated rocks in the region. These coal seams have a maximum cover of 170 feet. The possibility of finding additional seams is remote.

Coal Seams

New Brunswick coal has been reserved to the Crown. Mining leases are granted for twenty-year periods.

The main seam is from 18 to 24 inches thick and in some areas one or more 2 to 6-in. seams occur with the Main Seam.

The coal is usually underlain with 2 to 5 feet of grey shale. The roof varies and in some instances the coal is overlain by hard, massive sandstone.

Due to folding of the measures, the coal formation was eroded over a considerable portion of the field and only the coal occurring in the down-warped basins was preserved.

The coal basin has been described by Wright and Clements as follows:

"The coal deposit lies in an undulating basin which stretches for a distance of about 20 miles along the bearing of N. 70° E. and is about 6 miles in width. In the central part of the basin, the coal lies about 50 feet below sea-level, and the highest known part of the seam (along the northern side) is about 270 feet above sea-level. The average angle of dip varies from horizontal to 5°, increasing in rare instances to 15° and 20°. Small faults, apparently normal, with a vertical throw of 2 to 5 feet, are not unusual. Regular lines of cleavage ('face cleat') are present."

[#] Trans. Can. Inst. Min. & Met. 1945, Vol. XLVIII, pp. 747 - 754.

The coal is classed as High Volatile Bituminous with ash in run-of-mine ranging from 15 to 20 per cent and the sulphur from 5.5 to 8.5 per cent. The coal breaks down rapidly during mining, preparation, loading, and shipping with about 66 per cent of the production in $1\frac{1}{8}$ -in. slack. Experiments have shown that the washed coal will make good domestic coke, with marketable by-products.

Coal Reserves

The reported mineable coal is 69,474,000 tons probable, and 8,809,000 tons possible, occurring in a total of 37,765 acres. In these estimates "probable coal" covers that proven by drilling and mining, as well as adjacent areas where the projection of sub-surface contours assures coal with reasonable certainty. "Possible Coal" covers areas where coal is known to exist but where data are not sufficient to outline the boundaries of probable coal.

Strippable Coal Reserves

In 1943, a field investigation of the coal fields was made for the Emergency Coal Production Board by Paul Weir, Mining Engineer, and Clayton G. Ball, Geologist, in order to determine the possibilities for large-scale development of strippable coal reserves. In this work these gentlemen had access to all the records and data of the New Brunswick Department of Lands and Mines and had the advice of the Provincial Geologist, the Inspector of Mines, and the associated Staff Officers.

Their conclusions were that the Chipman Area may have definite possibilities for large-scale development. They suggested a core-drilling program, together with actual surveys and mapping to determine the character and extent of the overburden up to the 60-ft. line, the continuity of the coal seam, together with its thickness, and the quality of the coal as it occurs in the seam.

It was pointed out that with 85 per cent recovery of a seam 16 inches in thickness with overburden of 20 feet, the ratio of cubic yards of overburden to one ton of coal recovered is 15.8.

"When it is considered that the ratio of 10 in many bituminous stripping fields in the United States has only recently been acknowledged to be economically strippable, the difficulties at Minto can be visualized."

In their opinion, a central preparation plant would probably be necessary and desirable in normal times. They suggested that this plant should be equipped for washing all sizes of coal and for heat-drying of all sizes after washing.

Prospecting and Development

Due to the covering of glacial drift, it is difficult to determine the extent of the coal areas. Pre-glacial erosion had removed the coal locally and these barren areas have been covered with the mantle of drift, as well as the areas containing coal. So in the customary drilling from the surface it is possible to miss either the local areas of coal or the barren areas.

Areas with not more than 30 feet of overburden are considered favorable for strip mining and the coal in the deeper areas must be won by underground mining.

For underground mining, inexpensive timber-lined shafts with two or three compartments are put down at frequent intervals and the surface equipment is of such a character that it may be moved successively from one shaft to another. Formerly it was felt that, considering the maintenance of haulage roads and the cost of hauling underground where drainage is a serious problem, it was more practical to sink another shaft and move the surface plant than to keep old roads open and drain the entire area. Usually the existing shafts were not more than one-half mile apart. Normally, these areas covered a maximum of ten acres and produced during their life not more than 30,000 tons. This old system of

mining is still in use in the smaller mines in the district where the seam lies near the outcrop. In later years, shafts and slopes have been put down to develop larger areas at greater depth with a production of as much as 1,000,000 tons.

There are seven underground operations which produce 73 per cent of the tonnage, while 27 per cent comes from strip pits.

Underground Mining System

After the general contours on the coal have been determined by drilling, entries are driven in order to provide drainage toward the shaft bottom, as drainage and haulage are most important and generally are controlling factors in planning the workings. Secondary entries are usually driven parallel to the face cleat. Double entries are used in a few mines, but the single-entry system is the more common. Entries are driven as narrow as possible, due to the difficulty of roof support, the single-track haulage entries being 7 feet by 6 feet, while so-called counter levels are 4.5 feet by 6 feet (wide enough to take a 6-ft. bar).

In room and pillar mines, the rooms are 15 to 18 feet wide on 30 to 36-ft. centers. Rooms are driven 150 to 250 feet and longwall faces from 300 to 350 feet. Rooms are usually widened on one side on the advance, but only the roadway is brushed. As much as possible of this material (24 to 30 inches) is gobbed and the pillars are drawn where practical. There is only one mine using longwall.

Mine gases have never occurred in sufficient quantity to cause trouble. The chief problem is the removal of powder smoke, small portable underground fans being used to supplement the regular mine ventilation.

Drainage ditches are usually placed along the side of haulage roads. Seasonal changes alter the flow of underground water. Sumps are located at strategic points and electric

pumping stations pump to the surface. In one of the wettest mines, the pumps handle 12,600 gallons per hour and it was stated some mines are pumping from 30 to 72 tons of water per ton of coal hoisted and one ton of rock is hoisted for every two tons of coal.

For underground mining the production per man-day has ranged from 1.424 tons in 1938 to 1.141 in 1944.

REPORT OF INSPECTIONS

Rothwell Coal Company, Limited.

Shaft No. 15 - W. B. Evans

This shaft mine is 110 feet deep. It is relatively new with a well-kept plant, buildings, shops, etc., being suitable for this type of operation.

Neat frame dwellings covered with asbestos sheeting have been built along the road leading to the mine. These houses have a basement, usually four rooms downstairs with a room upstairs, which in some instances is finished. There is no inside water or furnace.

The face coal measurements in this mine were, - 4 inches of coal in top bench, 5 inches of parting, and 16-17 inches of bottom coal.

This mine is very wet, with about 36 tons of water pumped per ton of coal. Drainage and pumping costs are quite heavy.

There is a field of 2,000,000 tons of coal available if the water can be drained off. A large underground pumping station has been installed with both steam and electric pumps.

Mining Equipment and Practice

No cutting machines, conveyors, or rope haulage have been installed. The track gauge is 30 inches; the cars (24 inches high by 36 inches wide) hold 1200 pounds. The cars are "wheeled" to and from the shaft.

The practice is to drive roads in rooms 7 feet wide,

with an advancing 12-ft. wall on one side. A 16-ft. wide wall is mined on the retreat on the other side. The face men do their own shooting, using electric caps.

The coal is screened by vibrating screens and the coarse coal is picked on a 4-ft. belt. The plant has a capacity of 5000 tons per month, but, due to the shortage of men, the tonnage is much less. In a week in May, 1945, operating 4.5 days with 391 shifts worked, the output was 547, or 1.4 tons per man-shift.

MINTO COAL COMPANY, LIMITED

This company has operations at several points, both underground and stripping.

C-2 Shaft Mine is operating a longwall advancing and a small room section which is the customary plan of the field. The seam is flat and there is considerable water to be handled.

The coal seam is

20 - 20 inches	top coal
4 - 6 inches	parting
4 - 5 inches	bottom coal

The longwall face is 300 feet long, which is cut by a reversible longwall machine with a 4-ft. bar. The cutting is done in the parting; the actual cutting time being $3\frac{1}{2}$ hours. The coal is hand-loaded on a shaking conveyor, the 15 HP electric drive being located in the middle of the face.

The crews on the longwall work were:

Cutting Shift

2 cutters
4 gummers
4 timbermen
1 building chocks at each end of wall
1 boss

Day Shift

4 pan movers
14 miners
5 at loading end, one pushing empties, one switching, one moving car under conveyor, one cribbing car, one pushing loaded cars
4 brushing and wheeling on far end
1 boss
<hr/> 40 Total

The tonnage for the face figures about 105 tons but it was stated the wall would not produce over 100 tons.

There is systematic timbering. "Straps" of 2-in. slabs about 6 inches wide and 6 feet long are hitched into the coal face (on 14 - 16 in. centers) and held by 8-ft. sticks (sawed on one side) which are set parallel to the face. These are supported by four posts. On the second bar back from the face, heavier posts (6 to 8 in.) are set between the posts previously set. These heavier posts are set on footers.

A 20-ft. pillar is left between the roads and at the end of the walls substantial wood chocks are built.

The timber supply for the right half of the wall is delivered in cars through the single track entry along the right side of the mined area, and then moved along the face, as needed, over the shaking conveyor along the face. Similarly, the timber required for the left half of the wall is hauled on the middle road to the conveyor line and shaken to the left.

Considerable lump coal is being loaded. The men on the wall do their drilling by hand and do their own shooting. The miners dig up the bottom coal which appears to loosen readily. Following the cutting of the face, three 2-in. pieces about 10 inches long are driven into the kerf to hold up the coal and roof until the miners are ready to load out the coal. Ventilation on the wall was good.

The brushing of the haulage road is about 100 feet in advance of the wall.

Welton & Henderson, Limited

Kelley Mine

The coal seam at this shaft mine measured 21.5 inches, there being no parting in the coal. Cutting machines were used formerly, but their use was discontinued due to the reduction in the height of the coal and other handicaps.

The practice is to drive room roadways 6 feet wide

and to brush for this width. The coal is mined for an additional width of 14 feet on one side. After the room has been driven to its full depth of 250 to 300 feet, the coal pillar on the other side, 14 feet, is mined retreating.

The overall production per man is reported to be .
1.4 tons.

Avon Coal Company, Limited

This stripping pit is near Rothwell. A drag scraper was removing the overburden and the coal is loaded by a standard shovel.

The coal seam consists of

6 inches	top coal
6 inches	parting
18 inches	coal

The practice is to strip down to the coal with the scraper, the top coal being lifted by hand and shovelled into trucks. Then the Cletrac shovel takes off the 6-in. parting and dumps it alongside the spoil bank. Following this the shovel digs and loads the bottom 18 inches of coal. Neither the overburden nor the coal is shot.

New Brunswick Electric Power Commission Power Plant

This plant located on Grand Lake receives its fuel from the local mines.

There are four boilers, one not in service, and four turbine units, as follows:

2	-	2500 KW
1	-	6250 KW
1	-	7500 KW

This 20,000 KW plant was using 270 tons of coal per day and uses in excess of 80,000 tons of slack coal annually. It was stated that the coal as received is often very wet and this causes much trouble. No average analyses of the coal as received were available but it was stated that at times the coal carries 14 to 24 per cent ash and 6 per cent sulphur.

Physical and Chemical Survey of Coals

Samples were taken from mines in the Minto coalfield during the summer of 1938. Results of the examination of the coals from sixteen collieries, together with a detailed comparison of the coals, are given in Memorandum Series No. 89, December, 1944, entitled, "Minto Coalfield", by E. Swartzman, J. H. H. Nicolls, E. J. Burrough, and R. E. Gilmore, Bureau of Mines, Mines and Geology Branch, Dominion Department of Mines and Resources. This report dealt with

North Minto District, 2 underground mines
South Minto District, 6 underground operations
Newcastle Bridge District, 3 underground mines
Chipman Area, 2 underground mines
 3 strip pits

Description of the plants at each of these operations is included in the report.

Washability of the Coal

The Submission by the Department of Lands and Mines presents a summary of data accumulated over a long period of years following tests in the Fuel Testing Laboratories at Ottawa. Most of these data have been published in Reports of Investigations, Carbonizing Section. Publication No. 195, December, 1944, gave a flow-sheet for washing Minto coal.

In the review of the results of the elaborate tests made on washability of Minto coals in the Bureau of Mine Laboratories, the following statements appear:

"The inherent ash and sulphur contents of the coals (1; in. slack) are medium to high and more or less uniform, whereas the yield of relatively pure coal is comparatively low and varies to some extent. A low yield of low gravity coal is usually associated with high inherent ash. The high inherent sulphur content of these coals may be attributed to the fact that the pyrites in these coals is present to a large extent in a finely disseminated form, embedded in the body of the coal.

"The inherent ash of the 1½ by 4 in. lump is quite high and varies appreciably for the various coals listed, whereas with the exception of one case, the yield of comparatively pure coal is very low.

"In so far as the 1½ in. slack is concerned simple washing, equivalent to a separation at 1.60 specific gravity reduced the ash content (raw coal, 11.8 to 23.1 per cent ash) to between 9.7 per cent and 12.6 per cent with an average of approximately 10.5 per cent irrespective of the ash content of the raw coal. The average amount of recoverable clean coal considering all mines was approximately 83.0 per cent. The sulphur content was reduced from an average of about 7.3 per cent to an approximate value of 5.8 per cent.

"The 1½ by 4 in. lump did not lend itself very well to cleaning, separation at a gravity of 1.60, only reducing the ash from an average of about 15.4 per cent to an average of about 13.2 per cent, with recoverable clean product amounting on the average to 88.9 per cent."

BY MR. FRAWLEY - Mr. Taylor and Mr. Evans are here, and they may now proceed to question Dr. Young on the report.

BY MR. A. D. TAYLOR - On Page 5, under "Coal Reserves", Dr. Young, I think, quoted Provincial authorities there when he says 69,474,000 tons probable, and 8,809,000 tons possible.

- In their evidence in Fredericton, Dr. Wright or Mr. Clements would not commit themselves to anything like that at all. That is my recollection of it. You are evidently quoting from them on that?

BY DR. YOUNG - I was, I think. Do you mean I have misquoted them?

BY MR. TAYLOR -- No, you probably got those figures from them.

BY MR. BENTON EVANS - They were not in the Provincial Brief, were they?

BY COMMISSIONER MORRISON - Perhaps Dr. Young can tell us where he got the figures.

BY DR. YOUNG - I think I got them from the submission to the Commission, or from the Operators Association.

BY MR. EVANS - That was twenty-five million.

BY COMMISSIONER MORRISON - Probable, or possible?

BY MR. EVANS - Probable, I guess we called it.

BY MR. TAYLOR - Estimated.

BY MR. EVANS - We pooled our knowledge.

BY COMMISSIONER MORRISON - Now Mr. Evans, let us be clear about that. You pooled your knowledge?

BY MR. EVANS - About our reserves, not all of our knowledge.

BY COMMISSIONER MORRISON - That would be quite a pool.

BY DR. YOUNG - I got it out of the submission to the Commission. It is a record of figures compiled, not by me.

BY MR. FRAWLEY - There was an article in the Canadian Institute Journal by Dr. Wright and Mr. Clements.

BY DR. YOUNG - I have that too.

BY MR. EVANS - This is our Association Submission on page 8 of Exhibit 73 - "A current estimate of probable and possible reserves indicate seventy million tons of probable and nine million tons possible."

BY DR. YOUNG - Those are substantial figures?

BY MR. EVANS - Yes. No official current estimate of actual reserves is available. The New Brunswick Coal Dealers Association estimate actual reserves amounting to some twenty-five million tons. That is our estimate. Each operator who has done some drilling, and that knowledge we gave to Dr. Petrie who prepared this, and there were some others we didn't control ourselves.

BY DR. YOUNG - I have before me Exhibit 75 which is a submission on the coal reserves and coal industry of New Brunswick as prepared for the Royal Commission by the Department of Lands and Mines, and I am referring to page 20, and these figures were taken from that page by me.

BY MR. FRAWLEY - These same figures?

BY DR. YOUNG - Yes.

BY MR. TAYLOR - My memory is that when that brief was presented before the Commission, we asked Dr. Wright how he could substantiate those figures, and I think his replies were not very -- well he was not very positive that that amount of coal was there.

BY THE CHAIRMAN - You can't substantiate figures of that kind.

BY COMMISSIONER MORRISON - Which figures are you taking particular objection to, the sixty-nine million probable or the nine million possible?

BY MR. TAYLOR - I think they are both wildcat sort of guesses.

BY COMMISSIONER MORRISON - What would your figures be, drawing on this pool of knowledge?

BY MR. TAYLOR - I would say between eighteen and twenty-five million.

Q. Probable?

A. That is, coal that we feel can be mined commercially.

Q. Then your quarrel with the nine million figure is that it is too low?

BY MR. EVANS - I think our twenty-five million tons is within reason.

BY COMMISSIONER MORRISON - I am trying to distinguish between "probable" and "possible". Are you quarrelling with the figure (to use round figures) of the nine million tons possible, quoted by Dr. Young? Do you think that is low?

BY MR. TAYLOR - It is hard for me to clarify between probable and possible. All the operators there know pretty well where their outcrops are, and all the known coal is taken up under lease, as you will see from the maps. There is a great deal of drilling that each company did in years gone by that there were not any records of.

BY COMMISSIONER MORRISON - There was a lot of sub-leasing in New Brunswick, if I recollect correctly.

BY MR. TAYLOR - I have not much experience with that, myself.

Q. I thought you were on the ground floor?

A. That was the basis, we pooled all the data we had, those in the Operators Association, and I might say that that figure was considered by some as quite high, but the others thought it conservative, and we settled on that figure.

BY THE CHAIRMAN - There is a difference between your calculations and those of the representative of the Government of New Brunswick?

BY MR. TAYLOR - For instance Mr. Chairman, we based our estimates on our actual experience in the field. Unfortunately some of us have opened shafts there and the drillings have not turned out as they seemed, and where we expected to get 18 or 20" it was down to 12 or 14". We would have to wipe all that out as far as any future operations are concerned, because I don't think we could take out 12" of relatively poor quality coal, and the Association's figures are based on the experience of the owners and what they considered as coal that could be mined.

Q. It does come down to a difference between your calculations and those of the Mines Department of New Brunswick?

A. Yes.

BY THE CHAIRMAN - So long as that is made clear on the record.

BY MR. EVANS - There had been a previous estimate by Dr. Dyer. He was away off, he called it Actual Coal Reserves, eight million two hundred thousand, and much more than that has been mined since he made that report.

BY MR. TAYLOR - On that same page (page 5, Exhibit 327) under "Strippable Coal Reserves". We have heard a lot of that in the last few years, and there has been a lot of coal stripped there. I think Mr. Weir and Mr. Ball, the consulting engineers, I don't think they saw very many openings in that district. Years ago I had some experience up there and we found very little 20" coal. We found a lot more 12" and 13", and I think for that reason that that whole report should be discounted very very much.

BY DR. YOUNG - May I ask if they, at any time, presented any figures on the estimated reserves? The report sent me by this

Commission I don't think contains any estimates of reserves. Quoting from page 5 (Exhibit 327) I say "They suggested a core-drilling program, together with actual surveys and mapping to determine...etc". I didn't know they had prepared an estimate of reserves. If they did, I have not seen them or used them.

BY MR. TAYLOR - They had some preliminary report in Fredericton, I believe, in which they outlined what might be done, but they said they went on the promise that it was all 20" coal, and then they said that would have to be confirmed. As President of the Association, I am trying to impress before the Commission that although there is stripping coal in the district, the shaft coal has to be the backbone of the New Brunswick production from now on. When you get down to 12" and 13" coal, for the most part with the experience I have had ---

BY COMMISSIONER McLAURIN - Let me make a suggestion to you. That is the proposition you are putting to Dr. Young, and I would suggest that it be treated as a question to Dr. Young. Mr. Taylor is suggesting to you Dr. Young, in regard to the reports you have written, that deep sea mining in the future will be the backbone of the industry. Do you concur in that?

BY DR. YOUNG - After reading and studying the reports available to me, I could not help feel that the future of the field would depend on the underground mining. That the stripping areas were only in one part of the field, and not assured there. Quoting again from the bottom of page 5 (Exhibit 327) - "It was pointed out that with 85 per cent recovery of a seam 16 inches in thickness with overburden of 20 feet, the ratio of cubic yards..etc"

That is what I thought Mr. Weir and Mr. Ball had in mind. I don't recall any estimates there. Judging from what information I had, I will agree with you that the underground mining will, in the long run, from the information we now have, be the source of the coal production of the field for a longer period of time than the strippable areas.

BY MR. EVANS - That point should be emphasized. Mr. Taylor said what our Association thought about it. This stripping was emphasized in the last year because it has increased, and shaft mining decreased, but that does not tell the story for future years.

BY COMMISSIONER MORRISON - From observation, the stripping I saw there must have been almost as costly as the underground mining, having regard to the heavy overburden they were removing for a thin seam of coal. Was that your impression of the operation Mr. Taylor?

BY MR. TAYLOR - Yes. The one advantage of stripping for us was that it was a war measure, and I don't think that any of the equipment that was put in there, that there was much risk attached to the investment when that equipment went in, and for that reason there was considerable coal produced by the use of that equipment. In normal times when labor is plenty and the men come back, I think Mr. Young is very close there when he says thirty feet.

BY COMMISSIONER McLAUREN - You say the nature of stripping in regard to subsidy was only justified in the war period?

BY MR. TAYLOR - I would not put myself on record for that. I said the subsidies, the private enterprise took the risk in putting that equipment in.

BY THE CHAIRMAN - Having regard to stripping in this country, east and west, having regard to war time production of cost of mining, don't you think the future of the coal mining in this country depends on underground mining rather than strip mining, east and west?

BY DR. YOUNG - I would say so.

BY COMMISSIONER McLAURIN - Excluding Saskatchewan and some sources of coal in Alberta.

BY MR. FRAWLEY - Yes, excluding Estevan.

BY THE CHAIRMAN - Well, you can put in, excluding Estevan.

BY DR. YOUNG - All right.

BY MR. FRAWLEY - Any further questions Mr. Taylor?

BY MR. TAYLOR - I have not looked at any of these Companies reports.

BY MR. FRAWLEY - They are just factual reports.

BY MR. TAYLOR - The last report that has been made in co-operation with the Coal Producers Association, the Provincial Government and Emergency Coal Production Board. You will remember in Fredericton we had a great deal of difference of opinion on the question of washing Minto coal and the result. We have a report up-to-date on bulk sampling from all the operating mines there.

BY THE CHAIRMAN - I was talking to the other two Commissioners about the Swartzman report. There was a suggestion made when we were in Fredericton that the Coal Operators would like to have the opportunity of cross-examining Mr. Swartzman here. Does that second report made available to you clear up that situation?

BY MR. TAYLOR - Yes, I think so. We thought before his premises were wrong, and I think the tests he has made this time show that very clearly. We just got the report last week and have not been able to analyze it.

BY COMMISSIONER McLAURIN - You have seen Swartzman's second report and have no quarrel with it?

BY MR. TAYLOR - No. It is just factual of results. But I think it should be on the record with this Commission, because I think it substantiates what we said in Fredericton.

BY MR. FRAWLEY - We have it, as it is filed by the Fuel people.

BY THE CHAIRMAN - Anything else Mr. Taylor?

BY MR. TAYLOR - I think that whole question of washability will probably be covered by a further report by Mr. Vissac of the Emergency Coal Production Board, and can be put in the record.

K. J. MORRISON recalled, Examined by Mr. Frawley.

Q You are still under oath. You have done some work on the financial affairs of the Minto operators?

A Yes.

Q You have a report to present to the Commission?

A Yes. At the sittings at Sydney there was presented Exhibit "D" for Identification, which contained the financial reports of the New Brunswick operators, as well as the Nova Scotia operators, and at that time it was arranged that insofar as the financial statements contained in the exhibit, they would be left in abeyance until the report on the New Brunswick operations was presented. I now have that report of the New Brunswick operators which can be presented and marked Exhibit 328, and associated with that is "D" for Identification, which contains among other things the financial statements of the New Brunswick operators. The ones being reported on now are Avon Coal Company Limited, W. B. Evans, King Coal Mines, Miramichi Lumber Company Limited, Into Coal Company Limited and Newcastle Coal Company.

Q They are the only ones whose statements appear in Exhibit "D"?

A No; all the other Nova Scotia companies.

Q But speaking of New Brunswick?

A That is correct.

MR. MORRISON submits

Exhibit 328 - Report re Financial Statements,
1930-1944, Various Coal Companies,
New Brunswick

(Supported by Exhibit "D" for Identification)

Various Coal Companies - New BrunswickGeneral Report

For comparative purposes, we submit hereunder summarized particulars of the financial position and operating and production results of the New Brunswick Companies, as follows:

CAPITAL EMPLOYED

As stated in our Report on the Nova Scotia Companies, the ascertainment of the actual amount of capital employed depends on the following considerations:

- (1) The original amount paid for the properties;
- (2) The charging to operations of expenditures which should have been capitalized;
- (3) Depreciation properly chargeable;
- (4) Depletion to be allowed.

Until such time as the above items have been finally determined, the summary which is submitted herewith, under the heading of "Capital Employed", represents the amount invested in the various companies as at the end of the 1944 fiscal period, and represented by common shares, proprietor's equity, funded debt and reserves. The amount involved for the New Brunswick Companies is \$772,310.90, made up as follows:

Avon Coal Company Limited	\$128,607.57
W. B. Evans	38,239.32
King Coal Mines	84.78
Miramichi Lumber Company Limited	137,629.37
Minto Coal Company Limited	428,837.62
Newcastle Coal Company	38,912.24
	<u>\$772,310.90</u>

The assets making up the above figure are as follows:

<u>Properties</u>		
Depreciable	\$768,772.34	
<u>Less Depreciation Reserve</u>	<u>477,371.92</u>	\$291,400.42
Non Depreciable	531,557.71	
<u>Less Depletion Reserve</u>	<u>336,360.08</u>	195,197.63
		<u>\$486,598.05</u>
<u>Current, Investments, etc.</u>		
Assets	\$473,586.60	
<u>Less Liabilities</u>	<u>254,313.89</u>	219,272.71
<u>Deferred</u>		66,440.14
		<u>\$772,310.90</u>

The invested equity is represented by:-

Common Share Capital, including Proprietor's Equity	\$762,865.71
Funded Debt	33,000.00
Reserves	29,500.00
	<u>\$825,365.71</u>
<u>Less Deficit Accounts</u>	53,054.81
	<u>\$772,310.90</u>

OPERATING RESULTS - SPECIFIED YEARS

Submitted herewith are summaries showing the operating results for specified years (1930, 1935, 1939 and 1944). These are the results as shown by the books of the companies, and as detailed in our explanatory report.

The results for the year 1944 are shown with the subsidies claimed or received included, and also the results excluding the subsidy claims:-

<u>Company</u>	<u>1930</u>	<u>1935</u>	<u>1939</u>	Including Subsidy Claimed or Received, <u>1944</u>	Excluding Subsidy, <u>1944</u>
Avon Coal Co. Ltd.	\$12,266.84	259.76	-659.31	-9,529.34	-60,168.27
W. B. Evans	5,564.40	-6,710.28	3,791.58	-10,760.54	-53,709.94
King Coal Mines		3,201.01	-5,366.00	-3,089.83	-26,626.94
Miramichi Lumber Co. Ltd.	-1,709.14	-17,192.72	-11,815.47	-131.55	-37,090.03
Minto Coal Co. Ltd.	12,735.61	-1,131.61	38,223.18	-7,649.20	-93,881.84
Newcastle Coal Co.			1,981.51	-4,654.68	-28,108.07
	<u>\$28,857.71</u>	<u>-21,573.84</u>	<u>26,155.49</u>	<u>-37,815.14</u>	<u>-299,585.09</u>

PRODUCTION COMPARISON

The undernoted is a summary of the production tonnage and production per man for the four specified years (1930, 1935, 1939 and 1944):-

	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>	
<u>Production Comparison</u> <u>(Short Tons)</u>					
Avon	40,538	52,360	47,113	47,801	1944-50% Stripping
Evans	19,230	35,349	32,491	35,766	
King		16,423	22,546	22,287	
Miramichi	27,379	68,666	73,962	40,389	
Minto (Sales)	78,921	81,250	100,934	97,792	
Newcastle			27,686	18,949	
	<u>166,068</u>	<u>254,048</u>	<u>304,732</u>	<u>262,984</u>	

Production Per Man
(Long Tons)

Avon	1.78	1.27	1.24	1.50	1944-50% Stripping
Evans		.94	1.21	1.05	
King			1.29	1.04	
Miramichi			1.11	1.20	
Minto		1.05	1.30	1.23	

SALES PRICE AND MINING COSTS

The undernoted is a comparison of the net sale price at the mine, based on the tons sold, with the pithead costs, on the basis of tons produced, as shown by the records of the various companies. These figures are all on the basis of long tons:-

<u>Net Sale Price at Mine</u> <u>(Overall Price) (Long Tons)</u>	<u>1930</u>	<u>1935</u>	<u>1939</u>	<u>1944</u>
Avon	\$4.09	3.62	4.04	6.16
Evans	4.51	3.75	3.84	5.62
King		3.82	3.73	5.98
Miramichi	4.80	3.85	3.99	6.08
Minto	5.10	4.00	4.02	5.35

Mining Costs - Production
(Long Tons)

Avon	\$3.76	3.79	4.15	8.35
Evans	4.42	3.97	3.76	7.46
King		3.21	3.76	7.28
Miramichi	3.90	3.71	3.85	6.38
Minto	4.83	4.09	3.58	6.34

REPORTS ON INDIVIDUAL COMPANIES

A short report on each individual Company is attached hereto giving further explanations of the capitalization, earnings, costs, sales, etc.

R E P O R TAvon Coal Company Limited - Saint John, N. B.

The above Company is capitalized at \$150,000.00; Preferred stock being issued for \$100,000.00 and \$50,000.00 in Common.

Prior to 1930, advances were made to this Company by the Nashwaak Pulp and Paper Company Ltd., totalling \$65,000, which were repaid in 1943. The Pulp and Paper Company also made further advances on a note of \$19,320.00 in 1934 which was reduced to \$18,000.00 in 1942, and liquidated the following year.

8% Debenture stock was issued to the amount of \$60,000.00 due in 1934, all of which was redeemed in 1933 and prior years.

A further issue of first mortgage serial income bonds was made in 1943 of \$65,000.00 of which \$16,000.00 had been redeemed in 1944.

The leaseholds were valued in the Balance Sheet in 1930 at \$152,694.00 which have been written down by depletion to \$57,979.00 by the end of 1944.

Equipment having a gross value of \$150,435.00 and net value of \$59,156.00 as at 30st December, 1944, is in use at that date.

The average annual production for the past fifteen years is 42,450 long tons, the high being 56,118 in 1941 and the low 24,575 in 1931.

This Company sells the majority of its coal to the railways and the pulp and paper companies in the ratio of approximately 1/3 and 2/3 of its total sales.

The following is a condensed summary of operations:

<u>Year</u>	<u>Sales Short Tons</u>	<u>Profit or Loss</u>	<u>Total Man-Shifts</u>	<u>Production Short Tons</u>
1930	40,538	\$ 12,267	20,324	40,538
1931	27,524	8,293	Incomplete	27,524
1932	34,395	1,354	23,098	34,395
1933	53,529	1,349	43,980	53,529
1934	53,459	-387	44,745	53,459
1935	61,779	260	37,035 (aprx.)	52,360
1936	71,898	-2,159	38,934	52,155
1937	60,486	-20,395	31,353	44,570
1938	42,715	-9,644	28,220	39,330
1939	59,646	-659	33,965	47,113
1940	58,752	-5,905	39,738	51,843
1941	67,763	706	44,172	62,852
1942	59,735	135	21,157	x 53,943
ø 1943	51,958	5,000	24,679	x 51,724
ø 1944	50,788	-9,529	28,224	x 47,801
ø - Includes subsidies from Emergency Coal Production Board -				
			1943 -	\$33,244.00
			1944 -	50,639.00
x - Partly stripping operation - approximately 50%.				

The following is an analysis of mining costs (long tons):

<u>Year</u>	<u>Labor</u>	<u>Material</u>	<u>Depreciation and Depletion</u>	<u>Other Charges</u>	<u>Total</u>
1930	\$ 2.078	.318	.512	.855	\$ 3.763
1931	2.051	.324	.496	1.008	3.879
1932	2.000	.378	.495	.999	3.872
1933	1.975	.316	.349	.997	3.637
1934	1.990	.361	.458	.928	3.737
1935	1.942	.358	.615	.874	3.789
1936	1.874	.316	.813	.862	3.865
1937	2.075	.455	.811	.989	4.330
1938	2.102	.451	.610	1.059	4.222
1939	2.071	.394	.777	.908	4.150
1940	2.537	.463	.596	1.017	4.613
1941	2.659	.479	.614	1.061	4.813

<u>Year</u>	<u>Shaft Operations</u>	<u>Stripping Operations</u>
1942	\$ 5.760	\$ 4.379
1943	6.149	5.242
1944	8.353	6.542

W. Benton Evans - Minto, N. B.

This operation is a sole proprietorship transacting its business on an average capital of from \$22,000.00 to \$47,000.00. The total tonnage mined ranges from 18,000 tons to 44,000 tons annually.

The capital invested in mining properties, including plant and equipment as at 31st December, 1944, was \$55,463.00 gross, from which must be deducted accumulated depreciation of \$37,960.00 or a net of \$17,503.00. Development expenditures are carried as a deferred asset and written off over a period of years.

Claims have been made to the Emergency Coal Production Board for subsidies in respect of the years 1942 to 1944, as follows:

<u>Year</u>	<u>Subsidy Allowed</u>	<u>Subsidy Claimed</u>
1942	\$ 3,007.42	\$ 2,676.71
1943	34,748.14	40,116.13
1944	42,949.40	40,541.56

Owing to the above reductions in subsidies claimed, the operating results as shown on the financial statements are subject to the following adjustments:

<u>Year</u>	<u>Result Shown</u>	<u>Subsidy Adjustment</u>	<u>Net Result</u>
1942	\$ -1,550.86	\$ 330.71	\$ -1,220.15
1943	5,000.00	-5,367.99	-367.99
1944	-13,168.38	2,407.84	-10,760.54

As mentioned previously, this operator writes off annually a proportion of the development expenses, etc., the balance as at December 31, 1944, being summarized as follows:-

	<u>Gross Cost</u>	<u>Net Book Value</u>
Shaft No. 15	\$ 12,106.75	\$ -
Shaft House	3,849.17	244.04
Railway Siding	4,610.72	-
Power Plant	4,859.77	-
Boiler House	1,082.91	44.56
South Rothwell Road	254.99	82.90
New Stores Building	2,507.05	639.18
Camp	352.89	-
Wash House	12,665.13	9,059.71
Repair Shop Building	2,222.00	757.14
No. 15 Shaft Camps	1,125.08	33.54
	<u>\$ 45,636.46</u>	<u>\$ 10,861.07</u>
Main Levels	17,381.26	8,797.46
Mud Dumps	2,291.35	860.77
Air Courses	1,090.95	375.66
	<u>\$ 66,400.02</u>	<u>\$ 20,894.96</u>

An analysis of the fixed assets as at 31st December, 1944, is tabulated as follows:-

	Asset Value	Depn. Rate	Depn. Reserve	Net Value
Track Underground	\$ 6,013.50	15%	\$ 5,418.87	\$ 594.63
Boilers & Engines	4,895.08	15	4,895.08	-
Screening and Picking Equipment	2,345.01	15	2,345.01	-
Pumping Equipment	4,276.85	15	3,750.19	526.66
Ventilation Equipment	2,866.59	15	2,350.17	516.42
Timbers	2,184.95	15	2,184.95	-
Office Building	2,425.00	10	1,212.50	1,212.50
South Rothwell Houses	17,665.86	20	6,062.85	11,603.01
Automobile	16,000.00	15	1,120.00	480.00
Office Equipment	1,151.80	10	498.85	652.95
Repair Equipment	887.99	-	887.99	-
Camps	1,405.82	-	-	1,405.82
Mine Cars	7,177.05	10	7,177.05	-
Weighing Equipment	568.00	10	56.80	511.20
	<u>\$ 55,463.50</u>		<u>37,960.31</u>	<u>17,503.19</u>

Included in the Mining cost is a salary allowance to the operator as Manager.

A condensed summary of operations is as follows:-

Year	Production Short Tons	Profit or Loss
1930	19,230	\$ 5,564
1931	18,428	4,768
1932	21,761	4,469
1933	29,990	6,180
1934	32,660	2,740
1935	35,349	-6,710
1936	30,542	-1,674
1937	28,005	-4,356
1938	25,165	-13
1939	32,491	3,791
1940	44,273	2,243
1941	49,150	-3,574
1942	41,910	-1,551
1943	36,900	5,000
1944	35,766	-13,168

) Includes
subsidies
as mentioned
previously

The following is an analysis of the mining costs
(long tons):

<u>Year</u>	<u>Labor</u>	<u>Material</u>	<u>Depn. & Depletion</u>	<u>Other Charges</u>	<u>Total</u>
1930	\$2.934	.179	.506	.797	\$ 4.416
1931	2.816	.187	.479	.783	4.265
1932	2.523	.168	.520	.771	3.982
1933	2.222	.182	.496	.595	3.495
1934	2.446	.520	.165	.605	3.736
1935	2.510	.210	.569	.683	3.972
Average	2.531	.258	.445	.688	3.922
1936	2.775	.217	.186	.632	3.810
1937	2.634	.204	.398	.731	3.967
1938	2.669	.186	.395	.700	3.950
1939	2.660	.178	.264	.662	3.764
Avg.	2.686	.195	.305	.679	3.865
1940	3.062	.181	.277	.639	4.159
1941	2.849	.201	.558	.786	4.394
1942	2.974	.178	.607	.837	4.596
1943	3.545	.592	.548	1.299	5.984
1944	5.171	.685	.367	1.343	7.566
Avg. \$	3.426	.350	.474	.947	5.197

King Coal Mines - Chipman, N. B.

This operation is a proprietorship working the King Coal lease approximately $1\frac{1}{2}$ miles below Chipman, N. B., Production commenced in 1933.

As shown by the Balance Sheet as at 1944, the properties have a net value of \$26,718.00.

Depreciation is taken on the buildings at 5%, machinery 10%, and shafts at approximately 14%.

Depletion has been set up at 10 cents per short ton until 1941. Subsequently 13 cents per ton has been charged.

A summary of the operating results is as hereunder:-

<u>Year</u>	<u>Tonnage (Short)</u>	<u>Profit or Loss</u>
1933	12,614	\$ -234
1934	12,834	2,771
1935	16,423	2,998
1936	21,353	6,706
1937	21,829	-9,879
1938	22,248	-4,233
1939	22,546	-5,366
1940	21,393	-5,317
1941	20,042	-7,560
1942	23,365	603
1943	22,141	-4,480
1944	22,287	-3,090

Subsidies are included only in 1944 to the amount of \$23,537.11.

The following is an analysis of mining costs (long tons):

<u>Year</u>	<u>Labor</u>	<u>Materials</u>	<u>Depn. and Depletion</u>	<u>Other Charges</u>	<u>Total</u>
1933	\$ 1.61	.19	.16	.56	\$ 2.52
1934	2.36	.36	.30	.58	3.60
1935	1.93	.48	.17	.63	3.21
Avg.	\$ 1.96	.36	.17	.63	3.12
1936	1.99	.44	.17	.57	3.17
1937	2.39	.68	.17	.75	3.99
1938	2.80	.24	.17	.74	3.95
1939	2.72	.36	.29	.39	3.76
Avg.	\$ 2.49	.43	.19	.62	3.73

(continued)

Analysis of Mining Costs (Continued)

<u>Year</u>	<u>Labor</u>	<u>Materials</u>	<u>Depn. and Depletion</u>	<u>Other Charges</u>	<u>Total</u>
1940	\$ 2.95	.47	.21	.63	\$ 4.26
1941	3.81	.60	.26	.72	5.39
1942	3.08	.76	.29	.67	4.80
1943	3.20	.76	.31	.92	5.19
1944	5.21	.78	.30	.99	7.28
Avg.	\$ 3.64	.68	.28	.80	\$ 5.40

Included in the above costs is the salary to the Proprietor, who is also Mine Manager.

Miramichi Lumber Company Limited - Minto Coal Division

The statements under the above heading are in respect of the assets employed by and the operations of the Coal Division of the Miramichi Lumber Company for the mine at Minto, N. B.

The net investment of this division as at the end of 1944 is \$137,629.37. The coal department is charged interest on this investment as shown by the summary of profit and loss. Before interest, the operating results including depreciation, depletion and development, as charged by the Company and detailed on the operating statements is as follows:

<u>Year</u>	<u>Net Tons Sold</u>	<u>Profit or Loss (Excluding interest on investment)</u>
1930	27,860	\$ -1,709.14
1931	24,044	-10,652.03
1932	34,864	2,634.82
1933	51,690	-6,805.82
1934	61,250	-2,309.24
1935	68,281	-17,192.72
1936	66,243	-18,189.40
1937	53,965	-21,033.08
1938	52,252	-13,018.39
1939	89,086	-11,815.47
1940	104,115	-8,495.49
1941	89,914	-22,181.49
1942	75,758	-25,422.85
1943	58,449	-345.03
1944	40,379	-131.55

Subsidies are included in the foregoing results for 1943 of \$13,901.29 and in 1944 of \$29,959.47.

Sales

From the operating statement, it will be noted that the majority of the coal is sold to the International Paper Company and the Canadian National Railway. The undernoted is a comparison of the volume and value per ton of these sales for the years 1940 - 1944:-

<u>Year</u>	<u>International Paper</u>		<u>Canadian National Rly.</u>	
	<u>Tons</u>	<u>Per Ton</u>	<u>Tons</u>	<u>Per Ton</u>
1940	74,494	\$ 3.805	26,513	\$ 4.235
1941	69,319	4.123	17,751	4.450
1942	64,375	4.323	8,945	4.767
1943	35,832	4.687	21,130	4.770
1944	25,226	5.401	12,998	5.649

As this Company is making losses over this entire period, the matter of the sale price is of vital interest.

The undernoted summary is an analysis of the mining costs in long tons:-

<u>Year</u>	<u>Labor</u>	<u>Material</u>	<u>Depreciation Depletion & Development</u>	<u>Other Charges</u>	<u>Total</u>
1930	\$ 2.850	.451	.299	.301	\$ 3.901
1931	2.921	.409	.277	.324	3.931
1932	2.480	.390	.161	.357	3.388
1933	2.326	.345	.191	.449	3.311
1934	2.353	.358	.252	.404	3.367
1935	2.528	.394	.309	.477	3.708
1936	2.406	.364	.262	.556	3.588
1937	2.356	.396	.316	.606	3.674
1938	2.445	.356	.293	.717	3.811
1939	2.587	.284	.329	.652	3.852
1940	2.853	.328	.326	.687	4.104
1941	3.149	.251	.479	.772	4.651
1942	3.043	.233	.638	.653	4.567
1943	3.158	.306	.451	.634	4.549
1944	4.542	.418	.447	.970	6.377

In latter years development and stripping coal was produced at the following cost:-

<u>Year</u>	<u>Development</u>		<u>Stripping</u>	
	<u>Long Tons</u>	<u>Per Ton</u>	<u>Long Tons</u>	<u>Per Ton</u>
1940	3,400	\$ 4.272		
1941	2,822	4.506	5,838	\$ 3.557
1942	2,124	4.679	3,220	7.728
1943	276	5.318		

Minto Coal Co. Ltd. - Minto, N. B.

The Minto Coal Company is capitalized at \$400,000.00 and has gross properties on its books as at the end of 1944 of \$754,767.62, against which depletion and depreciation of \$596,350.55 has been provided, leaving a net value of \$158,417.07.

Under lease the Company has the rights of 20,668 acres of coal lands.

Dividends have been paid totalling \$218,000.00 from 1932 to 1943.

The results of the Company's operations over the past fifteen years is summarized below:

<u>Year</u>	<u>Sales Short Tons</u>	<u>Profit or Loss</u>
1930	78,921	\$ 12,735.61
1931	66,520	4,688.21
1932	65,987	14,094.70
1933	80,358	22,561.36
1934	71,769	- 779.04
1935	81,250	- 1,131.61
1936	78,793	2,716.72
1937	97,123	27,985.03
1938	58,757	- 3,702.75
1939	100,934	38,223.18
1940	133,301	63,272.04
1941	115,010	20,466.48
1942	127,258	76,480.46
1943	111,395	- 292.99
1944	97,792	- 7,649.20

Before the loss for 1944 was arrived at \$86,252.64 in subsidy was included.

•	•
•	•
••	•
•••	•
••••	•
•••••	•
••••••	•
•••••••	•
••••••••	•
•••••••••	•
••••••••••	•
•••••••••••	•
••••••••••••	•
•••••••••••••	•
••••••••••••••	•
•••••••••••••••	•
••••••••••••••••	•
•••••••••••••••••	•
••••••••••••••••••	•
•••••••••••••••••••	•
••••••••••••••••••••	•
•••••••••••••••••••••	•
••••••••••••••••••••••	•
••••••••••~	•

Minto Coal Co. (continued)

Depletion is taken at 10 cents per ton, together with depreciation varying from 30 cents to 5 cents per ton. Cost of coal has been consistently changed with development expenses, which of late years has been increased to 30 cents per ton plus the cost of stripping.

A summary of the mining costs in long tons is as follows:-

<u>Year</u>	<u>Labor</u>	<u>Material</u>	<u>Depreciation, Depletion & Development</u>	<u>Other Charges</u>	<u>Total</u>
1930	\$ 2.80	\$.42	\$.58	\$ 1.03	\$ 4.83
1931	2.72	.31	.61	1.12	4.76
1932	2.82	.20	.67	1.22	4.91
1933	2.32	.28	.58	.72	3.90
1934	2.48	.35	.49	.83	4.15
1935	2.44	.38	.48	.79	4.09
1936	2.30	.34	.56	.82	4.02
1937	2.06	.31	.52	.69	3.58
1938	2.33	.35	.39	1.01	4.08
1939	2.04	.34	.52	.68	3.58
1940	2.15	.35	.54	.68	3.72
1941	2.55	.39	.62	.77	4.33
1942	2.78	.29	.59	.75	4.41
1943	3.34	.24	.65	.84	5.07
1944	4.37	.27	.73	.97	6.34

Newcastle Coal Company - Minto, N. B.

Newcastle is a sole proprietorship, and shows capital assets of \$89,735.69 with a net value of \$49,378.09 at 31st December, 1944.

Depletion is entered in the records at 10 cents per ton and depreciation at 5% for Buildings, 10% on Plant and Equipment and 10% on coal cutting equipment.

For the years 1942, 1943 and 1944 development is written off at the rate of 15 cents per ton.

The net results are as follows:

<u>Year</u>	<u>Tonnage</u>	<u>Profit or Loss</u>	
1939	27,686	\$ 1,981.51	
1940	29,938	- 581.51	
1941	19,927	2,006.97	
1942	21,888	5,053.59	
1943	21,819	- 7,819.12	(Includes salary to proprietor)
1944	18,949	- 4,654.68	(Includes salary to proprietor and subsidy of \$23,453.39)

The total mining costs and expenses per long ton is tabulated below:-

<u>Year</u>	<u>Long Tons</u>	<u>Cost</u>
1939	24,720	\$ 3.737
1940	26,730	4.391
1941	17,794	4.509
1942	19,543	4.806
1943	19,481	5.472
1944	16,919	7.663 (Before subsidy)

BY MR. TAYLOR - What about Welton & Henderson?

BY K. J. MORRISON - We have a communication from Mr. Henderson but nothing on his collieries. I believe he wrote to Dr. Howland.

BY MR. EVANS - Mark Connors would be the man now. Mr. Henderson died in September of last year.

BY MR. FRAWLEY - Mr. Morrison is not presenting anything before the Commission on that.

BY MR. K. J. MORRISON - If I could get the correspondence it might clear the matter up.

BY MR. FRAWLEY - Mr. Henderson is the only other one you would make any suggestion about? There are other small operators there, of course?

BY MR. TAYLOR - Yes.

BY MR. FRAWLEY - These six mines represent about how much of the coal production?

BY MR. TAYLOR - About eighty per cent, I would say.

BY MR. EVANS - That is the only member of our Association not there?

BY MR. FRAWLEY - Yes.

BY K. J. MORRISON - We have a communication from Mr. Henderson dated June 5th, 1945, stating that he had not been able to fill out the Questionnaire owing to shortage of office help.

BY MR. FRAWLEY - You each have your own section of this Exhibit 328. You can reply in writing to any criticism.

BY MR. TAYLOR - As far as Newcastle Coal, and Miramichi, there is nothing. We had a meeting of the Association last Wednesday afternoon, and there was not anyone who questioned anything.

BY MR. K. J. MORRISON - You may find some differences in your per-ton costs, because unfortunately we have this long and short ton business. We have to translate your short tons into long tons for the purpose of comparison, and if there is anything in that, I will be very happy to confer with you on it.

510498
Canada. Coal, Royal Commission on
Minutes ... :
v.61-65

A.R.
C.XVII

University of Toronto
Library

DO NOT
REMOVE
THE
CARD
FROM
THIS
POCKET

Acme Library Card Pocket
LOWE-MARTIN CO. LIMITED

